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08-ALT-1

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California Energy Commission; Dockets Office, MS-4
Re: Docket # 08-ALT-1
1516 Ninth Street
Sacramento, CA 95814-5512

Email: docket@energy.state.ca.us

Re: Docket # 08-ALT-1
AB 118 Investment Plan for the Alternative and Renewable
Fuel and Vehicle Technology Program

Dear Commissioners:

The following comments address the December 2008 Draft Investment Plan prepared by Peter Ward. I presented these views to the CEC Staff Workshop in San Pedro on 18 February 2009. My comments and those of Ms. Nathalie Hoffman of California Renewable Energies, LLC, taken together, address the potential role of sugarcane and related plant species in the required biofuel portfolio for California.

I currently serve as Director of the University of California Kearney Agricultural Center in Fresno County, and as a Crop Physiologist and Air Quality Extension Specialist at UC Riverside. I have conducted research and published extensively with sugarcane, along with other research interests such as crop water use and agricultural impacts on and of air pollution.

The purpose of these comments is to urge certain refinements to the approach to funding decisions outlined in the investment plan. In general, I believe that the investment plan is well thought out and forward-looking.

The investment plan gives appropriate attention to the benefits of ultra low carbon fuels, including those derived from purpose-grown biofuel crops. It appropriately notes the potential large impact of such fuel cycles on GHG reduction—on a par with other categories of projects. With appropriate research and demonstration, as has been required for development of any of California's major crops, these fuel cycles can be sustainable, protective of air and water resources, and a source of badly needed rural employment.

1. I am concerned that the funding mechanisms as outlined may be more suited to large projects of an industrial nature than to the diverse requirements of developing a new, sustainable, and economically viable agricultural feedstock stream. Yet the potential benefits of these are large, the impacts short- and medium-term rather than in the distant

future, and the infrastructure for development of crop biofuel production is largely in place.

I urge the Commission to consider carefully the types of projects required to establish an agricultural production system. This typically includes variety development, market analyses, and applied research into production practices on diverse soils, and research into a range of pest protection practices for weeds, insects and pathogens, as well as engineering evaluation of planting, harvesting and transporting phases of the production cycle. The research and demonstration infrastructure is well developed in California and payoffs in terms of GHG reductions may be rapid and relatively inexpensive.

2. I am concerned that the Commission may take a broad and unfocused approach to biofuels as a generic category of inputs, rather than as a focused set of dedicated energy crops with high potential for success. Success must be measured according to ALL the criteria laid out in AB118, including sustainability and lack of additional environmental impacts. The CEC has a unique mandate to look into the future and lay out pathways that can lead to real change in our energy economy. As others have noted, it is not desirable for the State to pick the winners and losers among new technological approaches. However, it is equally clear that a recipe for ineffectiveness would be for the CEC to partially fund a large number of potential dedicated energy crops. Many of the widely touted candidate crops, successful in other regions, have little potential to succeed under California conditions of climate, water and land prices.

I urge the Commission to focus initially on a small set of high likelihood biofuel projects, including both waste stream and dedicated energy crops. A small number of such projects could still allow exploration of contrasting strategies such as low input with low yield vs. high input with high yield.

3. I wish to briefly summarize my recent research successes with *Saccharum* species (sugarcane and its stress tolerant relatives) under two California conditions. We have recently concluded harvests of a first year of growth of a wide variety of *Saccharum* clonal materials, both in the Imperial Valley and in the San Joaquin Valley. Our biomass yields and juice sugar contents were considerably higher than in commercial sugarcane production areas in the continental United States. We identified a strong benefit of incorporating a high proportion of wild relatives of commercial sugarcane during variety development. The proportion of such germplasm was highly correlated with biomass production in both locations.

Using physiological techniques, we have identified rapid screening methods to predict high yield. We are now in a position to screen and rapidly advance clones with exceptional adaptation to California conditions. Some of these materials have high sugar, and are suited to immediate use in fermentation facilities to produce bio-ethanol. Others have higher biomass potential but lower sugars. These are strong candidates for future cellulosic ethanol technologies.

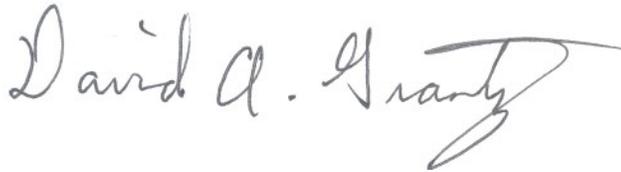
Water use remains a concern, particularly in the current drought. Based on a variety of measurements, experiments, and meteorological calculations, we believe that available sugarcane clones will use comparable or less water than current crops grown in these areas. With additional incorporation of germplasm from the wild relatives (that already represent 10% of the germplasm in commercial clones) locally

adapted varieties will use even less water, and possibly water of lower quality.

Based on these early results, and on considerable near-commercial experience with sugarcane in both the Imperial and San Joaquin Valleys, I urge the commission to look to the future of a sustainable and highly developed production system based on *Saccharum* clonal materials in California. Initially this will likely involve commercial sugarcane clones, but will likely evolve into even more sustainable, environmentally beneficial, and near GHG-neutral production of high biomass, stress resistance clones developed for specific California growing regions.

I would be please to discuss these issues at any time, and to provide any information that would prove useful as the Commission develops its final Investment Plan. This opportunity for California is unique and extremely important, and my University research group stands ready to help in any way we can.

Sincerely,

A handwritten signature in cursive script that reads "David A. Grantz". The signature is written in dark ink and is positioned below the word "Sincerely,".

Dr. David A. Grantz
Crop Physiologist, Air Quality Specialist
and Director, Kearney Agricultural Center
University of California

Cc: Commissioner Jim Boyd
Commissioner Karen Douglas