BioEnergy Producers Association
Clean Technology for Renewable Energy

James L. Stewart
Chairman of the Board

David Roberti, Senator (Ret.)
President

Kay Martin
Vice President

October 27, 2009

Mr. Steve Church
Research Division
California Air Resources Board
1001 "I" Street,
P.O. Box 2815
Sacramento, California 95812

Re: Comments on ETAAC Advanced Technology Development Proposed Final Report

Dear Mr. Church:

The BioEnergy Producers Association is a coalition of private and public entities dedicated to the development and commercialization of environmentally preferable industries that produce renewable sources of power, fuels and chemicals from agricultural, forestry and urban biomass, and plastic wastes. Our membership includes bioenergy technology providers, electric utilities and waste management companies.

We believe that this report has not adequately addressed the potential contribution of conversion technologies to energy independence, an improved environment, the in-state production of advanced biofuels and green power from readily available non-food derived resources, or an improved economy through low-cost liquid energy generation and domestic job creation.

For example, your report tends to dismiss gasification technologies as a viable option in advanced biofuels and renewable electricity production. However, today's advanced conversion technologies are capable of producing electricity without combustion as a by-product of biofuels production. These are among the most environmentally favorable alternatives for renewable electricity production, and they are baseload processes, as opposed to wind and solar, which is intermittent energy generation, and as they use readily available, locally generated organic waste materials, they eliminate the need to environmentally invasive transmission lines from remote areas, which are often required of wind and solar.

On page 4-12, the report states, "While biomass gasification for power production has been under development for some time, it has yet to reach commercial success." To the contrary, there are more than 100 thermal conversion facilities throughout the world that are treating (disposing of) biomass, principally municipal solid waste, in the production of renewable energy, in most cases, electricity. A list of these facilities is shown in the Appendix of the attached *Evaluation of Emissions from Thermal Conversion Technologies Processing Municipal Solid Waste and Biomass*, authored and published by the University of California, Riverside in June 2009.

As to emissions from these plants, the UC-R report states, "Results from the analysis indicate that pyrolysis and gasification facilities currently operating throughout the world with waste feedstocks meet each of their respective air quality emission limits. With few exceptions, most meet all of the current emission limits mandated in California, the United States, the European Union, and Japan. In the case of toxic air contaminants (dioxins/furans and mercury), every process evaluated met the most stringent emission standards worldwide."

Emissions data presented as to the environmentally-preferable operation of thermal conversion technologies throughout the world is essentially overlooked in policy-making, whereas the export of recyclables to Asian and other foreign markets, where there are few, if any, environmental regulations or controls, and where many recycling practices are known to be injurious to health and to the environment, is assumed to be preferable to the recovery of energy from these materials here at home.

When considering the effects of environmental policy on Economic and Technology Advancement, it should be noted, for example, that 75% of the recyclable paper and plastics generated in California is being exported to Asia, bringing no economic benefit to the state at all.

In discussing alternative approaches to waste conversion the ETAAC Report states on page 4-12, "Anaerobic digestion is suitable for wet feedstock such as animal and food waste, and sewage sludge. Gasification, on the (other) hand, applies to dry, lignin-rich biomass such as forest residues, straw and orchard prunings, and major portions of the MSW stream." Gasification is, in fact, capable of processing any carbonaceous material. It is feedstock flexible. It can handle any combination of feedstocks so long as the average moisture content is approximately 15-20%, and as these facilities generate a substantial amount of waste heat as a by-product, they have the internal capability to facilitate the drying of feedstocks like sewage sludge prior to the gasification step.

It should also be noted that when post-recycled municipal waste is gasified, rather than placed in a landfill, five times more energy is recovered. Biomethane, also known as landfill gas, to which the ETAAC study devotes a great deal of attention, can never be as efficient and it is impossible for current technologies to capture all of the methane that is emitted by a landfill. Therefore, gasification, by all standards, is an environmentally preferable method of disposal.

A primary product of gasification, when linked to biochemical processes, is the production of ethanol, a pathway that is overlooked in the Appendix III description of "Current Biofuel Pathways." These technologies can convert 95-98% of any cellulosic feedstocks to fuel-grade ethanol (versus 40-60% for second generation acid and enzymatic processes), and the ethanol that they produce will reduce CO2 emissions from automobiles by at least 86%, as compared to an energy-equivalent amount of gasoline.

Further, the production of ethanol from organic wastes is the only pathway that absolutely will meet or exceed the goals for greenhouse gas reduction established in California's new Low Carbon Fuel Standard.

When AB 939, the landmark legislation creating the California Integrated Waste Management Board and its attendant system of tracking and reducing waste passed the Legislature in 1989, the state was landfilling 40 million tons of municipal waste. Today, with a recycling rate of 58% (14% of which is green waste, biosolids and other materials that are being placed in landfills for use as alternate daily cover), and after allowing credit for biomass conversion and other waste combustion, the state is still landfilling 43 million tons of MSW per year. Population growth has more than offset the state's progress in recycling.

As California is expected to grow by another 10 million people over the next 25 years, it is not realistic to believe that we can eliminate our dependence on landfills through traditional means of recycling, source reduction and re-use alone, on which current regulatory policy relies.

Our public jurisdictions need new tools for processing California's growing waste streams. These tools include new waste conversion technologies, which are capable of recycling the carbon in California's waste streams for the in-state production of clean advanced non-food derived biofuels and renewable electricity.

We believe that your report could constructively take note of this.

Sincerely,

James L. Stewart
Chairman of the Board

Attachment: *"Evaluation of Emissions from Thermal Conversion Technologies Processing Municipal Solid Waste and Biomass"*