Remarks by James L. Stewart
Chairman of the Board, BioEnergy Producers Association
Pacific Southwest Organic Residuals Symposium, EPA
September 15, 2010

I'd like to begin by mentioning a critical point that should be a keynote of this symposium:

A new form of recycling is emerging that, as a national priority, supersedes anything that has ever been done with organic residuals before -- and that is energy recovery – the pursuit of energy independence and a cleaner environment through the recycling of carbon. It is going to change the face of the waste industry, and how we think about recycling, well before the end of this decade.

- The world's organic waste streams represent one of its most promising and immediately available sources of renewable energy. America generates between 1.5 and 2.0 billion tons of carbon-based wastes annually—some 500 million tons of which are *readily available* for conversion to energy in our local communities.

  The Argonne National Laboratory projects the total potential production of ethanol from all available organic waste resources nationally at 100 billion gallons— more than enough to eliminate our need to import petroleum.

- The Air Resources Board confirms that the production of ethanol from organic wastes is perhaps the only pathway that absolutely can meet or exceed its GHG reduction goals for the Low Carbon Fuel Standard. Further, the use of organic wastes as feedstocks for biofuels production has zero impact on Indirect Land Use Change.

  The ARB has projected that approximately 70% of the total petroleum displacement in California required to meet the 2020 goals of the LCFS must come from advanced biofuels.

  Early this year, ARB listed the "increased use of biofuels from waste materials" as its #1 solution to meet this goal. It has forecast the need for 24 new commercial scale advanced biofuels facilities in California by 2020. AB 222 therefore was critical to AB 32 implementation.

- Under the EPA's final rule for the Renewable Fuels Standard (RFS2), the biogenic portion of post-recycled municipal solid waste qualifies as renewable biomass for the purpose of meeting the federal mandate for the production of 21 billion gallon of advanced, non-food derived biofuels by the year 2020.

  According to the EPA's modeling, depending upon the feedstock and conversion process, cellulosic ethanol achieves GHG reductions of 72-130% as compared to an energy-equivalent amount of gasoline. On a life-cycle basis, GHG reductions are highest for organic wastes, which do not require the growing, harvest and

transport of cellulosic feedstocks.

- In 2009, University of California-Riverside conducted a landmark study of emissions data from non-combustion, non-incineration, thermal conversion facilities. It found that more than 300 of them are operating throughout the world.

  They all create one and the same product. They use thermal non-incineration processes to decompose carbon-based feedstocks into synthesis gas, an intermediate for the production of electricity, chemicals, a wide range of biofuels or pipeline quality synthetic natural gas.

  More than 100 of these are converting municipal solid waste to energy, principally electricity. All are required to meet the emissions standards of their local jurisdictions, some of which are higher than those of California.

  The 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. In the case of toxic air contaminants (dioxins/furans and mercury), every process evaluated met the most stringent emission standards worldwide."*

- The Obama administration is encouraging these technologies and committing billions of dollars in the form of direct grants and loan guarantees to commercialize them.

  Last December, the U.S. Department of Energy announced $600 million in Section 932 grants intended to support biorefinery projects involving a total investment of almost $1.3 billion.

  Seven federal grants and loan guarantees totaling $323 million (supporting total project costs of $651 million) involved California-based companies, but most of them are siting their projects in other states. Only 14% of that federal support and 9% of the total project costs will be spent in California.

Let's take a brief look at how the industry is progressing.

- GB&B, one of the nation's leading waste management consulting firms, has identified some 270 technologies -- in development, construction or operation – that produce advanced biofuels, green power, chemicals and other products from organic wastes.

- Further, our association is tracking approximately 60 non-combustion biomass power projects and 90 advanced, non-food derived biofuels projects now in development, construction or operation in North America, all of which, if located in California, would have been covered by AB 222.

- Waste Management has invested in three of these, including S4 Technologies — a

joint venture with InEnTec for the plasma gasification of waste for energy recovery; and Enerkem, which uses a proprietary gasification technology to produce a clean syngas that can be converted into a wide range of products.

Last December, Enerkem, a Canadian company, received a $50 million grant from the DOE's Section 932 biorefinery grant program. It will support the construction a 20 million gallon per year ethanol plant in Mississippi, which will use 189,000 tons of unsorted MSW per year as a feedstock.

Would the United States Department of Energy have given $50 million grants to both Enerkem, and to a similar technology, INEOS Bio, to support the construction of thermochemical projects in Mississippi and Florida that will include municipal solid waste in their feedstock mix, if they thought these technologies would in any way be harmful to the environment? I don't think so.

It was a loss to the state when, earlier this year, Enerkem informed the City of San Diego that, without AB 222, it would not do business in California. This is a quote from their formal presentation:

"Enerkem recently became interested in California because of active legislation that seeks to make the State more friendly towards waste-to-energy projects. Currently these technologies are considered Gasification and are not allowed to release any emissions. AB 222 will allow them to operate as long as they meet all local and state air quality regulations. If this bill does not pass, Enerkem would likely not be interested in operating in California because the permitting would be much too difficult."

In light of all of this, it is disappointing to report that, in late June, the five Democrats on the Senate Environmental Quality Committee unanimously voted to gut key provisions of AB 222. Subsequently, Committee staff published further amendments that would have made it even more difficult than it already is to permit and operate non-combustion solid waste conversion technologies in California--amendments which were curiously parallel to those advanced by Californians Against Waste, which has orchestrated the opposition to this, and similar legislative initiatives, for the past six years.

The goal of AB 222 was to expedite the implementation of new technologies for the recovery of energy from organic wastes by amending scientifically inaccurate definitions and other provisions in statute that are driving biobased technology providers and investment capital away from the state.

The bill was consistent with recommendations in California's Bioenergy Action Plan and independent studies conducted by the California Integrated Waste Management Board, the University of California and the California Biomass Collaborative, among other public agencies.

The bill fully protected the current recycling industry and its investment in infrastructure by stating that conversion technologies could only process post-recycled solid waste that otherwise would be destined for landfills.

It would have qualified the waste feedstocks processed by these facilities as landfill reduction (rather than as disposal) and would have qualified the electricity produced from the biogenic portion of solid waste as renewable under the state's Renewable Portfolio Standard (as landfill gas does today). These two provisions happen to be critical to the financing of these projects.

Conversion technologies can recover five times as much energy from MSW as landfill gas, and with fewer emissions. But electricity from landfill gas receives RPS credit, whereas if you gasify the MSW to produce electricity before it enters the landfill, it does not.

As I am sure you know, there is a gasification definition in statute that is universally acknowledged to be scientifically inaccurate. Among other things, it requires that biorefineries produce "no discharges of air contaminants or emissions, including greenhouse gases…" This is an impossible standard of performance--one required of no other manufacturing facility, refinery or power plant in the state, not even other renewable energy projects.

Today, other than gasification, all conversion technologies, including low temperature, acid or enzymatic, biochemical or mechanical processes, are categorized as "transformation," equating them with incineration and subjecting them to permitting pathways more rigorous than those required to site a major solid waste landfill.

In return for removing the gasification definition from statute, the Committee's amendments would have left all conversion technologies – including gasification -- in "transformation," permanently equating all of them as incineration and disqualifying gasification technologies from RPS and landfill reduction credits, which they currently receive. The problem today is that, under current statute, biobased technology providers have no reasonable assurance that they can ever get these technologies permitted.

In taking these actions, the Democrats on the Senate Environmental Quality Committee ignored and literally swept aside more than 100 statewide endorsements of AB 222, including those of the California Energy Commission, the Air Resources Board and CalRecycle--also ignoring the unanimous bi-partisan support the bill received in the Assembly Utilities & Commerce Committee (11-0); an Assembly passage which included unanimous support from the Republicans, which we have had from the beginning, and a majority of the voting Democrats (54-13); and approval by the Senate Energy, Utilities and Communications Committee (6-1).

If the bill had survived in any form that would have represented a workable "step forward" for the production of alternate biofuels and electricity from solid waste in this state, its passage by the full Senate and approval by the Governor appeared certain.

California's three leading regulatory agencies and other stakeholders made a dedicated effort to work with the Committee's staff to craft acceptable compromise language, but to no avail, and thus, we had no alternative but to withdraw our own legislation.

We are deeply grateful to Anthony Adams, a Republican from Southern California, and Fiona Ma, a Democrat from San Francisco, for their dedicated co-authorship of this legislation. They devoted two years to this campaign and they could not have done more.

We hear from certain legislative staffers that the entire environmental community is opposed to these technologies – but is that really the case?

A comprehensive report entitled "Smart Choices for Biofuels," published by the Sierra Club and Worldwatch Institute in 2009, points to "the urgent need for a major shift to more-advanced biofuels to prevent negative effects on the climate, land, soil, water, air, and rural economies," and it specifically includes thermochemical technologies in its definition of advanced biofuels.

And yet the Sierra Club followed Californians Against Waste down the garden path on AB 222.

"The Billion Gallon Challenge," a study released in June of this year by the Union of Concerned Scientists, says over and over that growth in renewable energy "depends on the successful and timely commercialization of the next generation of biofuels: cellulosic biofuels made from grass, wood waste, or even garbage. Unfortunately, this nascent alternative is stalled, a victim of inadequate policies…"

Page 49 of this report profiles Fulcrum BioEnergy and Bluefire Ethanol as two of the conversion technologies that can help to achieve these goals. *These are two of the California companies that have located plants in other states.*

In early September, Fulcrum, headquartered in Pleasanton and funded at least in part by California venture capital, announced that it has engaged Fluor Corporation as its EPC contractor and is proceeding with a $120 million thermal biomass conversion facility just across the border near Reno, where I believe it was permitted within six months.

The BlueFire technology uses concentrated acid hydrolysis to convert biomass, including cellulose from MSW, into ethanol. Frustrated by attempting to do business in California, they moved a major project from Riverside County to Fulton, Mississippi and took an $88 million DOE grant along with them. They are now in the final stages of applying for an additional $250 million loan guarantee.

In announcing the move, Arnold Klann, their CEO, said, "Navigating the development and licensing process in California in a time effective manner coupled with the challenging business climate in the State convinced BlueFire to petition the DOE for a

site change to Mississippi."

In all, California's biobased technology developers have now located projects approaching $1 billion in value, along with their related employment and economic stimulus, in other states.

And California-based venture capital is going out-of-state, as well. In July, Los Angeles based Ares Management committed $100 million to Plasco Energy, a Canadian plasma technology that has had full environmental validation and is about to commence construction on a commercial facility in Ottawa. It will convert 400 tons of MSW per day to electricity.

Meanwhile, while making it as difficult as possible to produce alternate biofuels from locally-generated solid waste, our legislators and environmental groups stand by quietly while Canada devastates the environment of Alberta to produce petroleum from oil sands--for export to **California**.

One of the key arguments I have consistently heard from environmental groups and legislative staffers throughout my six-year effort to move this legislation is that they wouldn't trust the regulatory agencies to enforce the statute if it were to pass. Democrats on the legislature's environmental committees have yielded to environmental opposition and have, in effect, prohibited biobased technology providers from operating in California for six years.

Our Governor said it best: "Environmentalists must stop letting the perfect become the enemy of the possible."

Eugene Tseng is one of the state's leading authorities on the permitting and regulation of solid waste. He is a member of the U.S. EPA's National Advisory Council for Environmental Policy and Technology, and Founder of UCLA's Recycling and MSW Management Program. Here is what he has written about AB 222.

"20 years ago, California was considered a leader in recycling and waste management. That is not the case any more. I regret to say that California is now lagging 20-25 years behind the European Union countries and countries in Asia.

"The European Union has put into place a statutory structure to achieve higher recycling rates and to lower their waste management carbon footprint. The combination of 1) extensive recycling programs, 2) a disposal ban for any decomposable organic waste, and 3) a new disposal ban for any material with energy value (no plastic in landfills), have created the infrastructure needed to achieve high diversion rates and recovery of renewable energy.

"The utilization of solid waste for the generation of energy has been an integral part of the fundamental approach utilized by the European Union. These countries recognize the strategic importance of having an alternative source of fuel to replace non-renewable fossil fuel, and that converting solid waste to clean renewable is consistent with their efforts to meet the emissions reduction goals of the Kyoto Protocol.

"I am being met with disbelief from both political officials and technical staff when I have tried to explain the current statutory infrastructure that AB 222 attempted to correct. They cannot believe that California is not current with the latest environmental policies and the integrated systems engineering approaches being utilized in Europe and Asia."

As a nation, we have endured a massive oil spill in the Gulf--likely the most devastating environmental disaster in our history. We are spending in excess of $300 billion annually to import petroleum, a meaningful portion of which is finding its way to organizations whose goals are to destroy this nation's value system, its economy and way of life. We are involved in two wars in the Middle East and are spending additional billions of dollars each year to protect our access to the region's petroleum resources--and we are seeking constructive ways to stimulate our domestic economy and provide employment.

Every single one of these issues would have been substantially and positively impacted by the passage of AB 222.

Don't be fooled. Not all environmentalists are against these technologies. Not all environmental groups, not even all environmental committee staff members and certainly not the great majority of Democratic legislators are attempting to slow their introduction. But environmental organizations are reluctant to step out of the pack and take a stand. Sustainable Conservation, which has established a statewide reputation for constructive problem solving, was one of the few that did.

In 1989, the year AB 939 established the state's recycling program, 40 million tons of municipal waste were landfilled in California. We are placing virtually the same amount in landfills today. The state's progress in recycling has been almost totally offset by its growing population and increased per capita disposal.

Los Angeles County and its 88 cities have spent billions of dollars to comply with state waste reduction mandates, but they still landfill 38,000 tons of trash per day--enough to fill the Rose Bowl every twelve days.

Achieving zero waste through the exclusive use of traditional recycling practices and composting is a pipe dream. Legislation to increase mandatory recycling to 75% failed in this session, and rightly so, because public jurisdictions, by statute and policy, are being denied the very technologies they would need to comply with that mandate. Even if California were somehow able to achieve a 75% recycling rate by 2020, it will landfill another 300 million tons in the process, and in 2020 it will still be landfilling 25 million tons of solid waste per year.

Opposition to conversion technologies is in fact support for the status quo of burying waste in landfills.

There is an axiom about legislative advocacy in Sacramento. It's called "follow the money." The bottom line is that this is not an environmental issue. It is a battle for equal access to California's waste streams in a free market economy. No single line

of business should have a monopoly on enabling California's public jurisdictions to meet their mandates for landfill reduction.

With the loss of AB 222, it could take five to six years to permit and construct a conversion technology facility in California—IF you could actually get one permitted.

Its failure has incentivized biobased technology providers to take their projects elsewhere. They can't afford to place their limited capital resources at that kind of risk.

A major opportunity to move this state toward energy independence, low-cost biofuels production, AB 32 GHG reduction goals, a Low Carbon Fuel Standard and a more productive use of its solid wastes may just have been lost.

But, in the words of Arnold Schwarzenegger, "We'll be back."