

Remarks by James L. Stewart  
Chairman, BioEnergy Producers Association  
Comments in response to the California Energy Commission's  
Integrated Energy Policy Report Workshop on Renewable Gas  
June 27, 2017

The BioEnergy Producers Association appreciates this opportunity to comment on the goals and objectives for the development of biogas, biomethane, and renewable gas projects in California, as discussed during the California Energy Commission's Integrated Energy Policy Report Workshop on Renewable Gas.

The focus of the conference was policy implementation in order to achieve the SB 1383 mandate that by January 1, 2018, the California Air Resources Board develop and enact a comprehensive short-lived climate pollutant strategy aimed at reducing statewide emissions of methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030.

The legislation also establishes targets to achieve a 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 levels by 2020 and a 75 percent reduction by 2025.

The Staff White Paper setting forth the challenges for stakeholders to address at this conference clearly and correctly stated that "California will need significantly more development and use of renewable gas, including biogas and biomethane, to meet its goal of 40% reduction of methane below levels 2013 levels by 2030."

The CEC Staff White Paper noted that "challenges impede the further propagation and development of biogas, biomethane, and renewable gas projects in California."

It asked, "What problems for renewable gas project proponents arise from lack of agency coordination? What key factors (such as incentives in capital, production, or regulations) are required to be in place to encourage more supply?"

This Association believes that central to these problems is the lack of a unified statutory and regulatory policy that acknowledges the potential role of conversion technologies (CTs) in producing renewable natural gas and other synthesis gas-derived products from the state's massive stream of post-recycled organic solid wastes.

Ever since its first publication in 2006, California's BioEnergy Action Plan has included language directing CalRecycle "to work to promulgate changes to existing law to develop a regulatory framework for biomass waste conversion facilities, meeting environmental standards, that clearly distinguishes them from disposal, and provides clear permitting pathways for their development, as well as provides

diversion credits to local jurisdictions for solid waste processed by these technologies.”

Further, the state’s Air Resources Board has long recognized that organic waste is one of the only feedstocks that, on a life-cycle basis, will meet the emissions reduction objectives of California’s Low Carbon Fuel Standard. As early as 2010, its staff declared that 24 waste-to-biofuels facilities would be required in the state by 2020--18 plants that produce biofuels from waste products and six new biodiesel/renewable diesel plants—to assist in meeting the goals of this program.

Another driver for the conversion of municipal solid waste (MSW) to RNG is SB 350, the Clean Energy and Pollution Reduction Act of 2015. Its provisions include a mandate for utilities to produce 50% percent of the state’s power from renewable energy by 2030. We understand that, for Southern California Gas Company, 50% means 50 billion cubic feet of RNG per year. Its plan to achieve this level of production would require the development of 14 gasification facilities capable of producing 42,000 SCFM of RNG from municipal solid waste.

Today, there is essentially no 2020 LCFS-compliant gasoline being produced.

Further, one major beneficiary of the state’s LCFS has been out-of-state biodiesel producers who have been shipping their product to California for sale in order to benefit from its financial incentives.

The Staff White Paper estimated that “the combined technical potential from all biomethane sources (animal manure, food waste, wastewater treatment plants, organic diversion of waste from landfills, and landfills, themselves) could produce up to 2.1 billion diesel gallons equivalent (DGE) per year of transportation fuel.”

This Association believes that, just from the approximately 33 million tons of post-recycled municipal solid waste now being placed in landfills each year, conversion technologies theoretically could produce 1.6 billion gallons of LCFS-compliant biofuels.

In 2011, the statewide goal of 75% recycling by 2020 was first established by the passage of California Assembly Bill AB 341.

In its 2012 AB 341 planning document, CalRecycle stated that achieving AB 341’s landfill diversion goals would require “an intellectually honest re-assessment of what truly constitutes recycling in California.”

Yet, in its subsequent policy implementation, CalRecycle has pursued a policy of solid waste management narrowly focused on source reduction, reuse, traditional product recycling, anaerobic digestion and composting as the only viable alternatives to landfilling.

It estimates that approximately 100 expansions or new anaerobic digestion or composting facilities, each at a capacity of 100 tons per day, and at a total

infrastructure investment of \$2-3 billion, without established and proven markets for the output, will be required to achieve its diversion goals.

None of the agency’s related planning documents have mentioned conversion technologies as playing any role in achieving this goal, and there was very limited reference to this potential in the presentations at the June 27<sup>th</sup> CEC conference.

Let us look at the results of that approach. Between 2010 and 2015 (CalRecycle’s most recent reporting date), the state’s recycling rate did not increase. It declined from 49% to 47%.

In terms of actual disposal, i.e., the tons of waste placed in landfills, whereas the state was disposing 30.4 million tons in 2010, it disposed of 33.2 million tons in 2015. Its per resident disposal rate – calculated in pounds of post-recycled waste disposed per resident per day, increased from 4.5 to 4.7.

<b>California's Solid Waste Disposal</b>			
	<b>Landfilled</b>	<b>Per Resident Disposal</b>	<b>Statewide Recycling</b>
	<i>(Millions of Tons)</i>	<i>(lbs/resident/day)</i>	<b>Rate</b>
<b>2010</b>	<b>30.4</b>	4.5	49%
<b>2011</b>	<b>29.9</b>	4.4	49%
<b>2012</b>	<b>29.3</b>	4.3	50%
<b>2013</b>	<b>30.2</b>	4.4	50%
<b>2014</b>	<b>31.2</b>	4.5	50%
<b>2015</b>	<b>33.2</b>	4.7	47%

To reach the goal of 75% diversion, CalRecycle estimates that an additional 23 million tons of solid waste will need to be recycled, reduced or composted in 2020. That is based on a projection that 80 million tons of solid waste will be generated in 2020.

Stated another way, it would need to reduce by approximately 10 million tons the volume of waste the state is placing in landfills today.

This association does not believe that these goals can be achieved unless new technologies and new tools are employed, technologies that can productively benefit the state – as they already are elsewhere throughout the world – in creating renewable gas, power, biofuels, chemicals and other biobased products, both increasing our recycling rate and benefiting our environment and our economy.

However, these technologies will never become a reality until clear permitting and regulatory pathways are put in place, regulations whose environmental and

operational standards are consistent with those for other solid waste processing or refinery operations in the state.

Gasification of MSW to produce syngas for power, liquid fuels or for the production of renewable natural gas (RNG) does not currently count as recycling.

Public jurisdictions do not receive diversion credit when making their solid waste feedstocks available for conversion to biomethane, biofuels, chemicals or other biobased products. This discourages jurisdictions from entering into long-term feedstock contracts with project developers, as such contracts would raise the possibility that, at some point, they could incur financial penalties for failing to meet their landfill diversion mandates.

The following chart identifies some of the key issues and proposed solutions necessary to implement more efficient use of California’s organic waste streams in the production of renewable natural gas, biofuels and other biobased products.

<b>Problem</b>	<b>Issue</b>	<b>Proposed Solution</b>
Definition of Recycling	CTs do not qualify under current statute. Over the past seven years, CalRecycle policy has not taken into account their potential contribution to the recycling process.	Revise language in PRC 40180 to read that solid waste qualifies as (or meets the definition of) "recycling." Institute policies that comply with the definition of recycling in that section.
Definition of Gasification	The definition is scientifically inaccurate. It discourages CT developers from attempting to operate in California.	Amend or delete definition of gasification in PRC 40117. Acknowledge its rightful place in the waste management hierarchy.
Diversion Credits	Waste Gasification presently does not qualify as diversion from landfilling.	Revise the definitions in PRC 40121, 40192 (b) and elsewhere to remove the classification of waste conversion as disposal.
Statutory Roadblocks	CalRecycle does not acknowledge gasification as having a role in achieving its AB 341 goal of 75% recycling. Policy should establish standards of performance, rather than regulating technologies by type.	Pursue corrective legislation to provide equal treatment for conversion technologies, and to ease the permitting for these projects, as has been done for composting and anaerobic digestion.

California statute (PRC 40180) defines recycling as *“the process of collecting, sorting, cleansing, treating, and reconstituting of materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products, which meet the quality standards necessary to be used in the marketplace.”*

In this definition, “recycling” is not simply the act of segregation, or the business of collection, or the sorting that occurs at the Materials Recovery Facility (MRF), or even the brokerage of those materials. It is a process--a pathway that transforms materials from being waste into *raw materials*. This involves changing the form or structure of something, whereas CalRecycle, in its AB 341 planning and other policy making, maintains that recycling constitutes only material segregation, collection, and sorting. Recycling programs that simply collect, sort, clean, and sell "recycled materials" are not performing recycling as defined in statute, but simply brokering goods as part of a larger, unregulated value chain.

The definition of "cessation of waste" in the statute of the state of New York reads: *“When granting a beneficial use determination, the department shall determine, on a case-by-case basis, the precise point at which the solid waste under review ceases to be solid waste. Unless otherwise determined for the particular solid waste under review, that point occurs when it is used in a manufacturing process to make a product or used as an effective substitute for a commercial product or used as a fuel for energy recovery.” [6NYCRR360-1.15 (d) (3)].*

This definition has resulted in a flexible regulatory framework based upon standards of performance. It is attracting major conversion technology projects to the state.

For the past decade, California’s legislature has blocked all efforts to amend or remove from statute a definition of gasification that is universally acknowledged to be scientifically inaccurate, and which leaves developers vulnerable to spurious legal challenges and possible shutdown due to lack of compliance.

Its key provisions currently read as follows:

*40117. "Gasification" means a technology that uses a noncombustion thermal process to convert solid waste to a clean burning fuel for the purpose of generating electricity, and that, at minimum, meets all of the following criteria:*

- (a) The technology does not use air or oxygen in the conversion process, except ambient air to maintain temperature control.*
- (b) The technology produces no discharges of air contaminants or emissions, including greenhouse gases, as defined in subdivision (g) of Section 38505 of the Health and Safety Code.*
- (c) The technology produces no discharges to surface or groundwaters of the state.*
- (d) The technology produces no hazardous waste.*

*(e) To the maximum extent feasible, the technology removes all recyclable materials and marketable green waste compostable materials from the solid waste stream prior to the conversion process and the owner or operator of the facility certifies that those materials will be recycled or composted.*

To summarize, the definition restricts the use of air or oxygen in the gasification process (a disqualifying element for most technologies), and requires zero emissions, not simply from the gasification step, but from the entire biorefining process. This is a physical impossibility and a standard that would shut down every power plant and petroleum refinery in the state, not to mention any gasification facilities. It creates uncertainty as to whether individual conversion technologies, when processing MSW, will qualify for credit under the state's Renewable Portfolio Standard. It would leave conversion technology developers vulnerable to spurious litigation that could prevent them from operating because they are not complying with a scientifically inaccurate definition in statute.

Following are other recent statutes that discourage the use of gasification in California:

AB 1126 establishes a definition for what it calls "engineered municipal solid waste conversion," a definition that makes no distinction between combustion and thermal conversion.

It places conversion technologies under feedstock volume and content limitations that had been drafted to regulate the incineration of MSW in cement kilns. For purposes of AB 939 and AB 341 compliance, it codifies that MSW residuals, when used to produce syngas or such derivatives as RNG or biofuels, count as disposal, rather than recycling. It denies RPS credit to facilities that generate power from MSW-derived biogas, which this feedstock would receive if it had been processed using anaerobic digestion.

The bill places Material Recovery Facilities (MRFs), when processing MSW feedstocks for use in CTs, under burdensome volume, content and reporting restrictions. It limits EMSW facilities to no more than 500 tons per day of feedstock (whereas landfills are allowed to accept up to 10,000 tons per day), restricting economies of scale, and limits feedstocks to no more than 25% moisture content and 25% noncombustible waste, when many CTs can handle 50% moisture content and higher.

SB 498, passed in late 2014, established a new definition for "Biomass Conversion". Although a token first step in dealing with the regulatory roadblocks facing conversion technologies, the bill specifically precludes municipal solid waste as a qualifying feedstock under this definition, instead addressing such single stream wastes as agricultural crop residues, green waste and non-recyclable paper.

California-based Fulcrum BioEnergy is constructing its first CT facility east of Reno, Nevada. Benefiting from commitments for a \$105 million USDA loan guarantee and a \$70 million grant from the Advanced Drop-in Biofuels Production Project of the Department of Defense, the plant will annually produce 10.5 million gallons of “drop-in” jet fuel or diesel and 16 megawatts of renewable electricity from 147,000 tons of post-recycled municipal solid waste. In part, the facility will use feedstocks supplied by Waste Connections, Inc., trucked from El Dorado County through the Lake Tahoe region to Nevada. This is of note because the electricity it produces, if sold back into California, will qualify as renewable under the California’s RPS, and by shipping its waste for gasification in Nevada, El Dorado County will obtain credit for landfill diversion in California and increase the County's recycling rate. Those provisions would be questionable if the project had been located in California.

We believe that major reasons for Fulcrum locating in Nevada were the state’s receptivity to conversion technologies and its regulatory framework which enabled the company to efficiently permit the project.

For more than a decade, lacking a supportive statutory and regulatory foothold, CT providers have been unwilling to risk time and capital to permit these projects in California.

Meanwhile, California’s state government continues to focus its efforts on improving the regulatory environment for other organic waste treatment processes that, in total, cannot address the state’s entire carbon-based waste stream. For example, through regulatory decision-making alone, the state classified anaerobic digestion as composting, and as recycling rather than disposal, exempting these technologies from having to follow the same uncertain and time-consuming permitting pathways required of other CTs, enabling them to receive landfill diversion credit, and to qualify the power they produce for the Renewable Portfolio Standard (“RPS”).

During the past ten years, California has placed in landfills approximately 340 million tons of post-recycled solid waste, one of the state’s most readily available and environmentally appropriate renewable feedstocks.

The passage of SB 32 and other legislative and regulatory initiatives over the past several years have reinforced the need for legislation that would enable the use of gasification in the production of RNG, biofuels and other biobased products.

In summary, there is a new form of recycling emerging that is re-defining the concept of recycling. It is the pursuit of energy independence and a cleaner environment through the recycling of carbon. The process, also known as molecular recycling, is going to change the face of the waste industry, and how we think about recycling during the years immediately ahead.

We trust that the policy re-examination emerging from the June 27<sup>th</sup> CEC conference will help to lead the state of California in that direction.