California Biomass Energy Alliance

3379 Somis Road PO Box 8 Somis, California 93066 (805) 386-4343

May 26, 2010

Clerk of the Board,
California Air Resources Board
1001 I Street, Sacramento, California 95814
Re: San Joaquin Valley Agricultural Burn Ban

**RE: May Board Item 10-5-2: San Joaquin Valley Smoke Management Program**

Dear Board:

Thank you for the opportunity to provide input to the California Air Resources Board ("CARB") regarding the recommendations of the San Joaquin Valley Air Pollution Control District ("District") on Agricultural Burning ("APCD Report"). This letter and attachments address several misconceptions and misunderstandings in the APCD Report about the current fleet of 12 operating biomass facilities that utilize SJ Valley agricultural waste. This letter is prepared by the California Biomass Energy Alliance ("CBEA") on behalf of these 12 existing biomass energy facilities operating in or near the San Joaquin Valley and drawing biomass materials from the Valley for fuel.

CBEA is a trade association representing 33 biomass energy facilities located in 19 counties throughout California, generating more than 650 MW of renewable electric power. Despite the APCD Report's consistent reference to only 9 plants, the 12 CBEA member plants that utilize San Joaquin Valley agricultural waste totals over 240 MW of renewable capacity, all but one under long-term contract to California's investor owned utilities (page7-38). The list below shows these plants with their latest contract dates. All of these plants began operating between 1985 and 1990, although six have renewed their contracts within the last 10 years.

| Facility Name | Region Served | Contracting Utility | Contract Length | Online Date |
|---|---|---|---|---|
| Rio Bravo Fresno | Central Valley | PG&E | 30 | 7/15/1988 |
| Covanta Mendota | Central Valley | PG&E | 25 | 1/1/1990 |
| Community Recycling Madera Power | Central Valley | PG&E | 10 | 6/1/2001 |
| Ampersand Chowchilla | Central Valley | PG&E | 15 | 12/12/2008 |
| Covanta Delano | South Valley | SDG&E | 10 | 1/1/2008 |
| Community Recycling Dinuba Energy | South Valley | PG&E | 11 | 7/1/2003 |
| Sierra Power | South Valley | PG&E | 15 | 2001 |
| Ampersand Merced Power | North Valley | PG&E | 15 | 12/12/2008 |
| Thermal Energy Tracy Power | North Valley | PG&E | 30 | 3/31/1990 |
| SPI Sonora | North Valley | merchant | N/A | 1999 |
| Covanta Chinese Station | North Valley | PG&E | 30 | 1/31/1987 |
| SPI Lincoln | North Valley | PG&E | 30 | 1985 |

## TECHNICAL FACTORS

CBEA is surprised that CARB staff has concurred with SJVAD staff's original recommendations released in April because the draft included numerous incorrect assumptions, particularly about the 12 biomass plants that use and have been using San Joaquin Valley agricultural wastes for 20 years.

a. Continued Operation of the Valley Biomass Plants

The District cites concerns that biomass facilities are not a reliable alternative for disposing of agricultural waste. This concern is expressed by the District because, in the past, several of the Valley biomass facilities shut down for upgrades and refurbishment in the mid-2000s after, in general, more than a decade of continuous operation. The District incorrectly assumes that the facilities will not operate reliably over the next decades based on this one out-of-context operational pause experienced by some of the plants. The attached CBEA letter, submitted to the APCD on May 5, 2010, provides additional details on the plant overhauls we mention here. As is shown on the plant list above, the biomass plants have been operating for many years, and have many more on their contracts with the utilities. Each and every plant confidently expects many more years of reliable operation.

b. Use of Agricultural Residues vs. Urban Wood Wastes

The District also fears that when the economy and the building industry recover, biomass facilities will no longer choose agricultural waste when "cheaper" urban waste is more readily available.

First, urban wood wastes are not significantly cheaper than agricultural materials, especially when damage to the plant equipment, caused by relatively higher ash content and higher proportion of "wood fines," is considered. The District's contention that urban waste is so much cheaper than agricultural waste is contradicted by its own Staff Report. In chapter 7, the District claims there is a price difference of about $12 per BDT between urban ($20-$23/BDT) and agricultural ($33-$34/BDT) fuel, *see* Staff Report at 7-26; yet in chapter 6, while discussing the additional impacts from other rules and requirements on the agriculture sector, the District says that the price biomass facilities are paying for agricultural materials is just $26/BDT. *See id*. at 6-17. However, regardless of what price the District uses, the biomass industry has repeatedly stated that it has a great need for more wood fuel and that agriculture waste is its preferred fuel due to the higher quality (higher BTU content, and lower ash content) and because of the equipment damage sustained from the use of lower-quality urban wood waste.

The District should accept our response that the higher use of agriculture waste is here to stay for four reasons:

- One of the main reasons plants had to do major refurbishments is because the past high use of low quality urban wastes caused substantial erosion to boiler tubes and refractory surfaces as well as damage to associated fuel conveying and transfer equipment and this in turn caused plant capacity factors to drop. No facility is likely

to repeat that mistake anytime soon after making these huge investments to return facilities to good operating condition.

- When (and if) the construction industry ever recovers fully, there are many other higher value markets for urban wood waste that have not been there in the past (colored mulch, Caltrans use for freeway erosion control and landscaping, particleboard feedstock, and composting, to name a few). There will be less urban waste available in the future than there was in the past.
- Properly processed agriculture waste has higher BTU content and less ash and wood fines, and typically minor amounts of metal such as nails and staples that must be removed or otherwise dealt with, as compared to urban waste.
- Newly refurbished plants will run at higher capacity factor thereby always needing more fuel than in past. There is not enough urban wood waste to fill this need because of the second reason stated above.

c. Emissions from Open-Burning vs. Use as Energy Boiler Fuel

District staff has done an evaluation of open-burn emissions vs. disposal of the same agriculture waste in a biomass plant in the Draft Report (pages 3-6-16). CBEA is surprised the District did not also include the conclusions from a 1997 report published by Dr. Carl Moyer of Accurex Environmental Corporation titled *"Emission Benefit From Firing Orchard Residue at Delano Energy Company"* (attached hereto for your review). This Accurex report evaluated all emissions from open burning vs. use at the Delano Energy facility, including the emissions from the chipping & hauling equipment and all the equipment used at the plant site. The emissions reductions from use of the agriculture wastes as boiler fuel at Delano Energy were much more dramatic than the APCD Report concludes. The District and others often quoted the conclusions of this report when it supported the very successful (but very short-lived) Agricultural Biomass-to-Energy Grant Program back in 2000-2003.

Further, many of the assumptions the District makes in calculating the difference in emissions between open burning and grinding and hauling material for use at a biomass facility are suspect. First, the District is subtracting the emissions that come from the biomass facility from the total benefit of the avoided open burning emissions. However, the biomass facilities are permitted and the District must assume that they will continue to produce these emissions whether or not the District prohibits open burning. Therefore, the real benefit is the total emissions that are avoided by banning open burning. This conclusion is supported by the attached study by Moyer, which found that burning orchard residues in a biomass facility lead to a significant reduction in criteria pollutants compared to open burning, taking into account equipment used to chip and haul the material. Also, in this study, the average distance to collect agricultural fuel was found to be 29 miles. This is in contrast to the District's assumed 100-mile distance.

d. Storage Space at Biomass Plants to Accommodate Seasonal Ag Operations

The District has contended that the storage capacity at the Valley biomass plants is not sufficient to accommodate the seasonal availability of the agricultural materials. In the attached May 5 letter, CBEA responded with information that proved there were enough storage space at all the facilities to deal with the seasonal nature of agriculture waste availability, yet the District has failed to acknowledge it. The District instead continues to use lack of storage capability as one of

the main reasons to extend burning of citrus orchards. In summary, the 12 biomass plants involved here have a combined fuel storage capacity of approximately 545,500 tons of material. The attached May 5 CBEA letter provides details on this storage capacity and the management of the fuel stored and its usage rate. This storage capacity is easily sufficient to handle the maximum additional 391,400 tons of agriculture materials that would be available if the burn ban were to be fully enacted (staff report Table 5-1).

e. Additional Biomass Plants Coming On-Line

The District has not properly assessed the impact of new plants coming online as a result of the state RPS and the Governor's Executive Order (S-06-06, April 25 2006) as state support program's for biomass by creating more lucrative markets for power with IOU's and Muni's. The probability of new biomass capacity, or new units at existing biomass plants, despite what is noted in the Draft Report Section 7.2.6, is quite high and will create additional demand for agriculture waste from the SJ Valley. Additional biomass capacity could be achieved in reasonable timeframes (2 to 4 years). Several existing coal fired plants in the District are undergoing conversions to co-fire up to 50% or convert to 100% biomass. Public records show that 3 such plants are Millennium Mt. Poso (SJVAPCD Permit Applications have been filed), Stockton AP Cogen, and POSDEF. These three 50 MW plants will each require approximately 400,000 BDT's of fuel or 1,200,000 BDTs annually. Much of the fuel used in these three facilities will be agricultural waste from the San Joaquin Valley.

## COST FACTORS

With respect to the District staff analysis of the cost impacts of moving the biomass material to a biomass plant vs. the current open-burning of the material, the Staff report contains two fundamental assumptions that may lead to incorrect conclusions regarding economic feasibility:

a. The use of an arbitrary threshold of unacceptable cost.

The District found that there were no economically feasible alternatives to the burning of many of the crop types that have been postponed or have yet to be phased out under SB 705. In order to conclude that the added costs of the alternatives to burning rendered these alternatives economically infeasible, the District applied a "10 percent of the crop category's net profits" test. (Staff Report at 1-4) Under this test, "If the cost of implementing the alternative exceeds ten percent of the crop category's net profit, District staff will recommend a temporary postponement of the burn prohibition for that specific crop/material." (Id)

The fundamental defect in the District's "10 percent of profits" test is that it has no rational connection to whether an alternative is "economically feasible." "Feasible" is defined in the California Environmental Quality Act ["CEQA"] Guidelines as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, and environmental, legal, social, and technological factors." 14 Cal. Code Regs. § 15364 (2007). Thus, the key question is whether an industry is *capable* of handling the costs of an alternative to burning. It is not enough to show that a control will be expensive, or even that the costs might exceed the benefits. The "10 percent of the industry's profits" test used by the District has no direct connection to whether the agriculture industry is "capable" of bearing the costs of control.

It gives no indication of whether the agriculture industry, or parts of it, will be threatened or whether farms will shut down.

First, the 10 percent cutoff itself is meaningless. If an industry is highly profitable, a reduction of 10 percent of profits does not mean that it is no longer profitable (e.g., the difference between a 20 percent return and an 18 percent return does not mean that the industry is not capable of absorbing additional costs). Similarly, an industry that has extremely low profit margins will not necessarily be forced to shut down if those marginal profits are reduced by 10 percent (e.g., the difference between a 2 percent rate of return may not be meaningfully distinct from a 1.8 percent rate of return). Moreover, the "10 percent of the industry's profits" test created by the District does not even mean profits will actually be reduced at all. The test does not attempt to assess how profits will in fact be affected. It is a simplistic comparison of costs to profits. The impact of these additional costs on profits depends on the ability of sources to raise their prices or lower their costs as a result of the regulation. In order to assess how the costs of control will affect an industry, the District should look at how those costs will impact production, employment, competition, and prices. None of these impacts can be determined from the proposed "10 percent" test. Further, if it is not economically feasible, then why have many biomass plants received tens of thousands of tons of citrus orchard wood and vineyard waste in the past several years? As is shown in the attached graph showing the agriculture fuel usage by the Valley plants over the years, the use of agriculture fuels has been increasing recently. Although the graph goes only through 2008, industry data, not yet published, indicates that about 700,000 BDT of agriculture materials from the San Joaquin Valley were consumed in 2009.

That this test answers none of the basic questions necessary for evaluating economic feasibility should not be surprising given that the test is derived from one that ARB and the District have traditionally used as a standard for assessing whether a District rule will have "significant economic impacts." (Staff Report at 1-5) The test does not indicate whether an industry is "capable" of meeting a new requirement; an economic analysis must be based on a much more comprehensive consideration of the industry than that conducted by the District, including an estimate of the total compliance cost, an estimate of the total and annual economic impact on each sector of the industry, an output demand elasticity analysis, and consideration of the impacts on employment requirements or contraction, energy use, increased production costs and consequent price increases by affected industries, capital requirements and capital financing problems, competition effects on profit and market structure, and the inflationary impact on consumers. Any additional costs that might be incurred by the agricultural industry in complying with a burn-ban would be costs of doing business, and the economic feasibility of the industry to bear these costs must be analyzed on an after-tax basis, which the District did not do. The District's use of the "10 percent of the industry's profits" test to find economic infeasibility has no technical basis whatsoever.

b. Use of Incorrect Time Periods for Amortization of Costs

The District assumes an incorrectly short period of time over which costs are amortized ~~of~~ because they incorrectly use~~s~~ a 10-year cost amortization schedule for vineyards and orchards when formulating the "cost to profits" of the burn alternative. This 10-year cost amortization schedule is inaccurate and produces artificially high annual cost figures for this one-time

expense. The productive lifespan of vineyards and orchards far exceeds the 10 year assumption. Documents submitted by the agriculture industry clearly state that "25 years is the standard production lifetime for a vineyard" and "the life of the [citrus] orchard is assumed to be 40 years." (Staff Report at Appendix H) Similar cost and return studies from the University of California Cooperative Extension show the expected life of almond, walnut, cherry, and pomegranate orchards to be 25 years, of pecan orchards to be 40 years, of nectarine and peach orchards to be 15 years, of olive orchards to be 40 - 60 years, and of fig orchards to be 50+ years. In fact, many of these crops do not reach their peak productive capabilities for several years, with citrus hitting its peak only after year 10. (Staff Report at Appendix H) By using a 10-year cost amortization schedule and a 10-year net profit figure, the District artificially reduces the overall profitability of the crop while creating an inaccurately high annual cost for the one time burn alternative activity. The Staff Report's estimates of "cost per net profit" uses a 10-year lifespan for all orchards, which artificially lowers profitability and exaggerates the impact of the cost of burn alternatives.

If the District insists on using this test, it must re-calculate using the appropriate time frames in order to get a realistic picture of how the cost of alternatives compares to the real profits of each crop category. In most cases, the cost of the alternatives to burning are far less than 10% of the crop category's real net profits and a postponement cannot be granted based on economic infeasibility.

## CONLCUSION

The Valley biomass plants are willing and able to provide:

- a major part of the solution to the problems of ozone precursor and particulate matter pollution from open burning, significant reduction in all criteria pollutants (99% reduction in PM2.5), with reductions resulting in every month of year;
- increased use of agricultural wastes, this especially because of the more favorable and less damaging combustion characteristics of agricultural residues as compared to urban wood wastes;
- the storage capacity and ability (today with existing plants) to use all of the seasonal agriculture wastes that would result if the District imposed the ban on open burning;

The Valley biomass plants would be pleased to continue working with the San Joaquin Valley Air Pollution Control District, Growers, Wood Suppliers, and CARB to craft a solution to the issue of implementing a ban on open burning of agricultural residues, with the resultant increase in renewable energy generation, in a manner that can be accepted by the parties involved.

On behalf of the California biomass power industry we request the District, with our participation and assistance, actively review the biomass plant solution now, with the aim of evaluating and taking opportunities to utilize these wood fuel sources for energy production upon District consideration of each open burning permit.

Sincerely,

Phil Reese, Chairman
California Biomass Energy Alliance

Attachments:
- CBEA letter to Ms. Koshoua Thao, San Joaquin Valley APCD, May 5, 2010.
- Accurex Report, Emission Benefit for Firing Orchard Residue at Delano Energy Company, Dr. Carl Moyer, December 10, 1997.