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RE: Docket 06-BAP-1

Santa Maria, 14 March 2006

I am submitting the following comments to the "DRAFT Recommendations for a Bioenergy Plan for California" (DOCKET # 06-BAP-1) for you consideration:

1-A) The Benefits of Bioenergy and the Need for State Action, Pg. 9:

> *Increasing landfill diversion by finding value-added uses for the nearly 30 million tons of biomass disposed of annually by Californians.*

And

1-B) Recommended Tier 1 Actions for 2006, Pg. 38:

> *g. Direct the California Integrated Waste Management Board to:*
>
> *1) Revise the existing statutory definition for "transformation" and recommend a new definition for "conversion technology" that facilitates development of environmentally acceptable waste management alternatives. In particular, review definitions of gasification, fermentation, pyrolysis, and manufacturing.*
>
> *2) Work to enact amendments to existing law to provide diversion credits to local jurisdictions for solid waste processed by eligible conversion technologies meeting environmental standards.*

Comment:
Instead of promoting landfill diversion through "soft" non-binding measures such as the introduction of diversion credits to local jurisdictions that apply MSW conversion technologies, an overall further increase of the statewide waste diversion mandate above and beyond 50 percent with zero-waste-to-landfill disposal as the final stage shall be implemented to reduce biomass disposal into the landfill to promote in particular source separation of organic matter for subsequent bimass-to-energy conversion. This increase in diversion also falls well in line with CIWMB's own established "Zero Waste California" target. A specific tiered schedule with a distinct zero-waste target date (for example 2020) shall be applied demonstrating California's leadership in sustainable waste/resource management throughout North America and thus, closing ranks with initiatives in Canada (e.g. Toronto's zero waste declaration) and other international zero-waster or near-zero-waste efforts.

Examples:

- Toronto's zero-waste Task Force 2010 program: Established in January 2001, the Waste Diversion Task Force 2010, comprised of all Toronto City Councilmembers, is charged with finding a 'made in Toronto' solution for waste diversion from landfill. The goal of Task Force 2010 is 30 per cent diversion by 2003, 60 per cent by 2006 and 100 per cent by 2010.
- European Union Council's Landfill Directive: The Directive sets targets to reduce biodegradable municipal landfill to 75% of 1995 amounts by 2010, 50% in 2013, and 35% by 2020.

2) Developments in Electricity Generation from Biomass, Pg. 15:

> *The development of bioreactor landfills – a closed capsule type landfill receiving mostly only organic material – could increase the efficiency at which methane is produced and captured from landfills, resulting in higher gas generation rates and more efficient use of limited landfill space. This technology is already being piloted in California.*

Comment:
This recommendation is highly questionable as it continues the cheap "business-as-usual" landfill operation scheme promoting the not well controlled decomposition of more or less contaminated organic matter with the generation of landfill gas contaminated with hazardous air pollutants as well as hazardous leachate. Furthermore, the decomposition process is inhomogeneous resulting in fluctuations of both, gas yield and composition/energy content. In addition, the decomposed organic matter is not easily recoverable and not contamination free resulting in a net loss of organic matter. In contrast, source separated organic matter collected and treated via anaerobic and/or aerobic digestion (composting) can be easily brought back to the soil within a short time as nutrient-rich soil amendment. The compost/ soil amendment is free of contaminants and has numerous applications (land application; fertilizer; weed and pest control; stormwater control), thus closing the carbon cycle in a sustainable fashion, and eliminating the generation of harmful leachate in landfill-"bioreactors".

3) Technical Barriers, Pg. 28:

> *Need to Commercialize New Technology*
> *To a great extent, the future success of bioenergy, particularly in California, depends on a number of emerging technology platforms that are at various stages of development. These include gasification, pyrolysis, and lignocellulosic ethanol. Broadly speaking, these technologies offer the potential for improved efficiency and reduced emissions relative to current technologies, as well as potential economic benefits.*
> *Biomass gasification, which has been under development for many years, can be used to generate power when coupled to a gas turbine, or serves as a front-end to certain biofuels options that are based on catalytic synthesis of syngas. Pyrolysis is a technology with potential for producing a range of products, including bio-oils and bio-based chemicals. The biological conversion of lignocellulosic feedstock into ethanol is not yet a commercial-scale process, despite sustained federal and other support for research and development.*
> *In the long-run, bio-refineries – conversion facilities that could combine some or all of the above processes – have not yet been commercially demonstrated. Optimization of biorefinery configurations, finding solutions to a range of scientific and engineering problems, and the need for capital to finance these large projects will require concerted, coordinated effort.*

Comment:
Based on state, national, as well as international applied success stories and mechanisms, a state-managed or state-authorized loan programs with established qualification criteria shall be created and implemented boosting and promoting bioenergy projects by providing long-term (10+ years) low-interest loans.

Additional comment:
New technologies such as gasification and pyrolysis for biomass treatment and energy recovery operate at elevated temperatures and/or pressures and thus, prove less advantages/sustainable compared to "low-temperature" anaerobic and aerobic digestion as it fails to close the carbon-soil-cycle due to the their physical process parameters.

4) Recommended Tier 1 Actions for 2006 pg. 37:

d. Request that the CPUC:

2) Initiate a proceeding to develop mechanisms that reward biopower for the range of benefits it provides in meeting RPS requirements and other power system needs. This could include biopower's contribution to the resource adequacy requirements for electric utilities and the ability to strategically-locate biopower facilities to relieve existing and expected future electric transmission congestion. A goal should be to provide biopower with long-term power purchase agreements.

Comment:
Based on the positive experience gained in other European countries it a new regulation shall require pubic and private utility agencies to provide access to their electric grid system to feed surplus renewable electric energy into the grid for a fixed reimbursable rate per kWh, depending upon the source of renewable energy generation, age (new vs. new) and scale/power output rating (e.g. 15 – 20 cents per kWh for biogas plants using organic feedstock)
This cost reimbursable mechanism shall be established for a period of 10 to 30 years providing investment long term planning securities.
This approach excels California's current net-metering policy.

The following initiatives may serve as good guideline examples:

- German Renewable Energy Sources Act ("Act on Granting Priority to Renewable Energy Sources"; http://www.erneuerbare-energien.de/inhalt/3242/2676/); March 2000
- German Ordinance on Generation of Electricity from Biomass (Biomass Ordinance; http://www.erneuerbare-energien.de/inhalt/5433/2671/); June 2001

General comment:
I consider it as an effective and efficient approach to learn from past and current practices and models in other regions in the world instead of trying to reinvent the wheel, and scale and adapt these models to the specific needs in California. Therefore, I recommend to establish a research working group (or if already in existence at various entities consolidate and document the findings and identify gaps for additional research) that explores and analyzes current bioenergy activities, programs, and initiatives across the globe.

Thank you for your consideration.

Sincerely,

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