

# REAP

Renewable Energy Action Project

California Energy Commission  
Dockets Unit  
Attn: Docket No. 06-BAP-1  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512

March 17, 2006

**Delivered by Electronic Mail**  
(docket@energy.state.ca.us)

RE: Bioenergy Action Plan (06-BAP-1)

Dear Commissioners,

The Renewable Energy Action Project (REAP) – a national coalition of environmentalists, private foundations, local government agencies, renewable energy advocates and producers – appreciates the opportunity to comment on the Bioenergy Action Plan. REAP commends the authors and contributors of the plan for setting forth viable and clear strategies to maximize California’s use of bioenergy resources. It is clear what the State must do to meet the goals of the plan.

REAP gave a presentation at the March 9<sup>th</sup> workshop, which has been submitted for the record. In addition, please find attached a recent report co-authored by REAP and Brett Hulsey (formerly of Sierra Club) entitled “Clearing the Air with Ethanol.” The report provides a different perspective on the air quality impacts of ethanol blending. We would like to expound on some of the issues addressed in REAP’s March 9<sup>th</sup> presentation, and in the REAP report.

1. Making a concrete commitment to ethanol is the optimal strategy to simultaneously build an in-state biofuels industry, displace petroleum, create economic development opportunities, and promote E85.

The “Minnesota Experience”<sup>1</sup> reveals that once a commitment is made to

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<sup>1</sup> The three primary elements of the Minnesota biofuels program are: (1) an ethanol blending requirement via an oxygen standard; (2) a 20 cents per gallon payment to ethanol producers for the first 20 million gallons per year for 10 years; (3) a 2 percent biodiesel requirement.

blending ethanol (which could also be achieved with a State RFS), in-state ethanol production increases dramatically. Once in-state production surpasses in-state demand, program trends in Minnesota indicate that much of the residual product flows into “high blend” (E85) markets.<sup>2</sup> This approach to increasing the production and use of biofuels in the State of California could be termed the “Overflow Strategy.” Minnesota recently opened its 200<sup>th</sup> E85 station.

The Minnesota experience also reveals that for every dollar spent on promoting ethanol production (via a 20 cents per gallon ethanol producer payment), the state receives \$16-20 in general fund dollars (primarily from increased tax revenue). Taken together with the fact that, on balance, ethanol is cheaper than the wholesale price of gasoline and can be utilized as a “hedge” against gasoline supply disruptions, a California ethanol program should have a tremendous “public benefit” in the form of savings at the pump, jobs and increased state economic output.

2. The Predictive Model provides an “ozone framework” for using ethanol in California, but should not be considered a barrier to implementing an aggressive California RFS.

There is considerable concern that ethanol fuel diversification programs are problematic in the context of ongoing fuels work conducted by the California Air Resources Board (CARB) and the Predictive Model. However, REAP does not believe there is a direct conflict.

All California fuels, whether containing ethanol or not, must “pass” the California Predictive Model. A fuel that passes the California Predictive Model, whether containing ethanol or not, cannot significantly increase emissions in any one of three categories: NOx, Total Hydrocarbons (THC) and Toxics. Put another way, the Predictive Model is calibrated to account for the unique emissions characteristics (i.e. strengths and weaknesses) of different blends to ensure that, on balance, the blend does not increase NOx, THC or Toxics.

In order to make the argument that low blend ethanol creates air quality problems, the source of the air quality problem must be an emissions characteristic that the Predictive Model fails to account for. For example, the NOx emissions increases associated with *some* ethanol blends do not result in air quality problems because the Predictive Model already accounts for them by assigning a NOx penalty to ethanol blends. There is no argument that the Predictive Model underestimates the NOx hit

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<sup>2</sup> For an illustration of this trend, see REAP presentation entitled “California Needs A Biofuels Plan,” [http://www.energy.ca.gov/bioenergy\\_action\\_plan/documents/index.html](http://www.energy.ca.gov/bioenergy_action_plan/documents/index.html) (March 9, 2006).

from ethanol blends.<sup>3</sup>

Permeation, on the other hand, is probably underestimated in the Predictive Model. Actual permeation emissions may exceed the 13 tpd “permeation factor” currently built into the Predictive Model. However, it is premature to suggest that permeation necessarily results in actual ozone increases, because permeation is only a subset of the  $CO + VOC = THC$  equation.<sup>4</sup> As such, a permeation increase may be offset by a reduction in another category of VOC (e.g. exhaust VOC) or by a reduction in CO, so that the THC profile does not increase. Further, the fleet-wide permeation impact (tons per day) has not been finalized, and the (offsetting) impact of CO is under review by ARB. If a portion of the increased permeation emissions is not mitigated by CO (or another factor), it must be mitigated via adjustments to the blend (as with NO<sub>x</sub>) in order for the blend to gain California certification. Either way, any Model adjustments adopted by CARB during the next several months, particularly with regard to permeation from ethanol blends, will be implemented by the time any biofuels strategy is enacted. **This will prevent emissions backsliding.**

The Predictive Model could, however, act as an indirect barrier to increased non-petroleum fuel use if it is calibrated in such a way that dissuades the use of biofuels. The recent study performed by the Coordinating Research Council (CRC E-67) demonstrates that in many cases the emissions impact of ethanol changed directionally with the alteration of other fuel properties. For example, ethanol slightly reduced NO<sub>x</sub> emissions in some scenarios and slightly increased NO<sub>x</sub> in others. **It is therefore critical that the State provide *immediate* guidance to ARB to calibrate the Predictive Model to optimize the use of non-petroleum fuels pursuant to the State’s goal of utilizing non-petroleum and renewable fuel sources.** Such guidance can be justified on three grounds.

- A. There is ample precedent for this type of guidance. The ARB last updated the Predictive Model in 1999. They did so under a mandate to facilitate the banning of MTBE and to provide flexibility for the use of “non-oxygenated” fuel to prevent the perceived risk of increased pump prices as a result of the MTBE ban. The ARB adjusted several regulatory parameters to make it easier for refiners to replace MTBE with petroleum compounds instead of ethanol. Since 1999, the State of California has made clear its policy goals of reducing petroleum

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<sup>3</sup> In fact, it may overestimate the NO<sub>x</sub> hit, creating an unwarranted regulatory burden on ethanol blends.

<sup>4</sup> Permeation, as an evaporative VOC, is a subset of the VOC category (< 10% of the VOC inventory) in the Predictive Model. The Predictive Model combines VOC with CO to form the THC profile (i.e.  $CO + VOC = THC$ ). The relative impacts of CO and VOC (i.e. ozone reactivities) are not the same, but the Predictive Model assigns different reactivity factors to VOC and CO to create ozone equivalency.

dependence, reducing CO2 emissions, utilizing bioenergy resources and increasing the use of renewable fuels. All of these goals are promoted by a fuels regulation that optimizes for non-petroleum fuel use.

- B. The perceived problems with “low blend” ethanol come as a result of the interaction between gasoline and ethanol, and not ethanol itself. Put another way, ethanol is superior to petroleum on its own (i.e. lower vapor pressure, lower aromatics, lower sulfur, higher natural octane). Given that the mixture is the problem, and not the fuel itself, there is substantial justification for optimizing the mixture (via blend specifications) to promote the use of a cleaner fuel (or put another way, to minimize the impacts of the interaction between gasoline and ethanol at < 10% ethanol by volume). It is worth noting that nearly all the deleterious air quality impacts attributed to ethanol should be attributed to the mixture between gasoline and ethanol.
- C. The Pew Center for Global Climate Change concluded that alcohol blends offer the greatest near-term potential to reduce greenhouse gas emissions from the transportation sector. In order to capture the climate change emissions benefits of biofuels, California will need a fuel regulation that optimizes non-petroleum fuel use, and provides a more far-reaching quantification of its air quality benefits (beyond just ozone to particulate (soot) and climate change mitigation).

3. A California Renewable Fuels Standard is a good way to promote non-petroleum fuels within the context of concerns expressed by ARB.

A California RFS based on an initial overall goal of 10 percent ethanol displacement and an ascending biodiesel requirement starting at 2 percent by volume would allow refiners to utilize varying levels of ethanol and biodiesel blending (including E85 and B20) to comply with State non-petroleum fuels targets within the context of the Predictive Model and more stringent summer blending requirements. As long as the Predictive Model is calibrated to optimize the use of non-petroleum fuels (or minimize the impacts of mixing them with petroleum), an RFS can simultaneously promote renewable fuels, empower the Predictive Model to protect air quality, and allow for flexibility in the marketplace.

However, we encourage the authors of the Bioenergy Action Plan to reconsider the target of 2 billion gallons of renewable fuel use by 2020. To date, California utilizes nearly 1 billion gallons of ethanol, and could increase its consumption of ethanol to 1.5 billion gallons with the use of E10. This is just one renewable fuel option.

Much has been made of the limited production capacity of biodiesel. However, under “aggressive” scenario estimates contained in other CEC literature, a California biodiesel industry could supply more than 10 percent of the projected 2020 diesel market with biodiesel. The utilization of out-of-state production, “e-diesel” blends, and renewable diesel could greatly increase the potential for California to meet the requirements of an aggressive RFS.

4. An over-emphasis on E85 is not good public policy to achieve near term petroleum reductions and CO2 goals.

Although E85 is one possible way to promote non-petroleum fuels, it is a longer term strategy that requires vehicular and infrastructural changes at various points in the marketplace; changes that have been extremely difficult to achieve over the years. From a near-term volumetric perspective it will have no impact on overall petroleum displacement. Aggressive implementation scenarios for E85 are in the vicinity of 40 million gallons displacement in the intermediate to long term, while “low blend” ethanol markets create the potential for 1.5 billion gallons of displacement in the immediate term. From a strategic perspective, E85 policies (like electric car policies) will be highly vulnerable to industry resistance, corporate bankruptcy problems and state budget constraints. Further, E85 programs are most successful in states that have made a commitment to “low blends” as well, most likely because this commitment builds the necessary political capital and demonstrated economic incentives to pass, fund and implement E85 programs.

5. California should strike a careful balance between flexibility and market certainty.

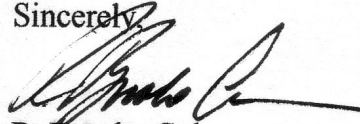
REAP encourages the Commission to strike a careful balance between policy recommendations that create flexibility in the market and those that include performance standards. For example, a statewide E10 program and a statewide RFS are both requirements; one is merely more flexible than the other. California needs both types of policies to create change in the California transportation fuels market.

Stakeholder calls to soften performance standards for the purposes of “flexibility” should be reviewed with an eye toward the need to create a stable platform for private equity investments in renewable energy sources. For example, recently revoked federal fuels regulations encouraged the blending of nearly 1 billion gallons of ethanol in California. However, this market is “exposed” because the Clean Air Act no longer requires oxygenates in California, and ethanol blending from a regulatory and market perspective is completely voluntary (flexible). While ethanol blending at some level remains a near certainty, the “flexibility” in the market is chilling further private equity investment in California producers. This market dynamic undercuts the growth

of a California biofuels industry, perpetuates the State's reliance on imported liquid fuels, and further delays the potential for the State to promote biomass-to-fuels programs. Until the State creates a market and regulatory "foundation" for fuels diversification, the potential of a California biofuels industry will not be realized. On the other hand, market based incentives have been successful in certain areas, including encouraging retailers to install E85 pumps and consumers to buy E85 fuel. As such, we strongly encourage the Commission to maintain its recommendations for strict performance standards.

REAP looks forward to working together on this important matter, and appreciates the opportunity to comment. We commend the Commission for providing a set of recommendations that properly recognizes the urgency of tapping California's bioenergy resources. We encourage the Commission to continue to move forward aggressively toward policy implementation.

Sincerely,



R. Brooke Coleman

Director

Renewable Energy Action Project (REAP)

ATT: Renewable Energy Action Project (REAP) and Better Environmental Solutions Report, "Clearing the Air with Ethanol" (March 2006).

Renewable Energy Action Project (REAP), CEC Bioenergy Workshop Presentation, "California Needs a Biofuels Plan," (March 9, 2006).

Minnesota Department of Agriculture, "Economic Impact of the Ethanol Industry in Minnesota" (May 2003).