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Commissioner James Boyd
California Energy Commission (CEC)
Attn: Docket No. 06-BAP-1
1516 Ninth St., MS-4
Sacramento, CA 95814-5512

Re: Draft Bioenergy Action Plan - Interagency Working Group (06-BAP-1)

Dear Commissioner Boyd;

I recently submitted comments on the draft Bioenergy Action Plan for consideration by the Interagency Working Group. However, I omitted mention of a recommendation that may be useful to the final report. My comment here specifically targets an important barrier to greater reduction in petroleum dependence; namely finding a solution to the apparent air emission issues associated with low blend ethanol in California.

As I mentioned in my earlier letter, the environmental community is divided on the environmental costs and benefits of low blend ethanol in gasoline. The California Air Resources Board (CARB) has supported, and recently received, a waiver from federal EPA oxygenate requirement that had caused refiners to blend an average of 5.7% ethanol in California formulated gasoline. One potential consequence of EPA's granting of the requested waiver is a reduction in the amount of ethanol blended into gasoline. The magnitude of reduction that may result is uncertain but up to 3.5 million tons of added fossil CO2 could be released in California annually. If the reported air emissions caused by low blend ethanol at the vehicle tailpipe could be resolved, California would have more choices in addressing greenhouse gas emissions and petroleum displacement. That could allow moving to an E10 sooner rather than later (or not at all). And, based on the Midwest experience, an E10 blend would allow for much faster and significantly greater reduction in petroleum consumption than would occur with an E 85 strategy alone.

Interestingly, ethanol has inherent characteristics that are better for air quality compared to petroleum derived gasoline, including reformulated gasoline. These include lower CO, HC, NOx, and toxics emissions in addition to reduced lifecycle greenhouse gases (GHG) released (primarily CO2). And ethanol's lower vapor pressure would indicate lower permeation and volatility compared to reformulated gasoline. The reported higher NOx and permeation associated with low blend ethanol, as reported by CARB, are at odds with what one expects from a shorter chain carbon fuel which is cleaner burning. The obvious question becomes, to the extent an emission problem exists with ethanol, is it endemic to the ethanol itself or is it gasoline formulation? And can the formulation be adjusted?

Note that gasoline is a complex blend of many different compounds. There are, for example, octane enhancers, anti-oxidants, deposit modifiers, surfactants, corrosion inhibitors, metal deactivators, etc. More fundamentally gasoline is composed of hundreds of hydrocarbon compounds encompassing aromatics, paraffins, olefins, etc. The proportion of hydrocarbons in any formulation varies, both between and within refiners, including by grade of gasoline, by state or region, seasonally, etc. Although there are quality standards for gasoline formulations (i.e. ASTM), specific information on any given formulation used by a refinery is proprietary and not available to the public.

I would like to propose a targeted research effort to develop low ethanol blend gasoline formulation(s) that do not increase either evaporative or NOx emissions. Although the CARB and industry have suggested that this is not feasible, there are indications that, in fact, it is. What is certain is that if we don't have a concerted effort, it will not happen.

What I am suggesting is collaboration between CEC, CARB, environmental groups, a transportation non profit and industry experts. The goal would be to develop a set of formulations that meet all performance and air emission requirements while insuring a financially viable result for industry. Note that my organization's work is based on a collaborative model of engagement with stakeholders. And this approach has proved very successful. But it involves doing what is necessary, in this case, going into the lab and getting hands dirty while experimenting with formulations. Inviting industry into the process is important, and their contributions would accelerate the development of solutions. To be frank, the petroleum industry may not be interested in participating in such an effort as they have historically fought low blend ethanol efforts in other states. However, this effort need not be premised on their participation, although it is desirable.

I would be happy to share more specific information on the mechanics of how such a collaborative effort could proceed and why there is reason for confidence that such an initiative will likely result in an environmentally superior low ethanol blend fuel. We are currently demonstrating a proprietary low NOx biodiesel blend with an industry partner, something thought to be infeasible but now reaching commercialization. I have already found strong interest by stakeholders that I have talked to for such an effort with ethanol.

I look forward to hearing back from the Interagency Working Group, or CEC staff, should there be an interest in exploring the option I have suggested here.

Thank you for considering this additional input on the draft Bioenergy Action Plan.

Sincerely,

Allen J. Dusault
Program Director

Cc: Susan Brown