growth energy™
America's Ethanol Supporters

777 North Capitol Street, NE, Suite 805, Washington, D.C. 20002
PHONE 202.545.4000 FAX 202.545.4001 GrowthEnergy.org

September 16, 2013

By Electronic Mail

Alexander Mitchell
Floyd Vergara
California Air Resources Board
Stationary Source Division
1001 I Street
Sacramento, California 95812

Re: Comments Regarding CARB's Alternative Diesel Fuels Rulemaking

Dear Sirs:

Growth Energy, an organization of ethanol producers and supporters, has a number of concerns with the Alternative Diesel Fuels (ADF) Regulations currently under development by the staff of the California Air Resources Board (CARB) which were the subject of a September 5th workshop held in Sacramento. These concerns, which are described in detail below, focus on the treatment of biodiesel and biodiesel blends currently being proposed by CARB staff. Overall, the provisions of the proposed ADF regulations would allow for the widespread use of biodiesel and biodiesel blends in California without adequately mitigating the resulting increases in emissions of oxides of nitrogen (NOx). The treatment being proposed by CARB staff for biodiesel and biodiesel blends is unacceptable in that it will result in adverse air quality impacts and violates several of the "underlying principles" in the February 15, 2013, CARB White Paper concerning its conceptual approach to the regulation of alternative diesel fuels, including:[1]

1. Protection of public health;

2. Preservation or improvement of air quality; and

3. Reliance on the best scientific knowledge available.

Given the above, Growth Energy urges CARB staff to revise the proposed ADF regulations to eliminate the potential for biodiesel use in California to result in increased emissions, degraded air quality and adverse impacts on public health.

[1] See page 3 of CARB's White Paper "Discussion of Conceptual Approach to Regulation of Alternative Diesel Fuels", February 15, 2013 which is available at http://www.arb.ca.gov/fuels/diesel/altdiesel/20130212ADFRegConcept.pdf

1. The Proposed ADF Regulation Incorrectly Ignores Increases in NOx Emissions Associated with Use of Biodiesel Blends

As currently drafted, the proposed ADF regulation fails to require any mitigation for increases in NOx emissions associated with the use of biodiesel until total biodiesel usage in the state amounts to at least 10% of all fuel used in diesel engines in California on an annual basis.[2] While the potential for increased NOx emissions due to this arbitrarily established "significance level" for biodiesel use is discussed in Section 2 below, its basic premise appears to be an assumption that there are no NOx emissions associated with the use of biodiesel blends at or below the B10 level. In support of the inaccurate assumption that there is some threshold level below which biodiesel use will not increase emissions, CARB cites its White Paper, which states:[1]

> *Furthermore, for purposes of this rulemaking B5 blends will be considered a legal California diesel fuel with no emissions mitigation required.*

This arbitrary threshold is not supported by any data or analysis, and we are unaware of any published analysis of emissions test data that supports the assumptions that there are no increases in NOx emissions at either the B5 or up to the B10 levels.

In contrast, a preliminary analysis of data from CARB's most recently funded biodiesel testing program[3] demonstrates that NOx emissions would increase significantly at the B5 and B10 levels in at least some engines and for some biodiesel types. Here, the term "significant" means both that the NOx increase is statistically significant and that it is large enough to be of concern. Although the fact that CARB has not made all of the emissions data from this testing program publically available makes analysis difficult, results of a preliminary analysis are shown in Table 1 below for a 2006 model-year Cummins heavy-duty diesel engine. As shown, the relationship between increasing biodiesel content and increased NOx emissions is statistically significant at the 95% confidence level in all cases for soy-based biodiesel and at the 90% confidence level or better for animal-based biodiesel.

Further, the R^2 statistics for soy-based fuels show that the emissions effect of biodiesel is almost perfectly linear with increasing biodiesel content. Although not as high because the emissions effect is smaller and measurement errors are relatively larger in comparison to the trend, the R^2 statistics for the animal-based fuels also clearly establish a linear increase in NOx emissions with increasing biodiesel content. Because the slope or the regression equations are statistically significant in all cases and the R^2 statistics are high, there is no evidence in the data for the Cummins engine of the "threshold effect" that CARB staff claims which purports that biodiesel content has to reach the B5 or B10 level before NOx emissions begin to increase.

---

[2] See slide 18 of the staff presentation for the September 5th workshop which is available at http://www.arb.ca.gov/fuels/diesel/altdiesel/20130905ADFWorkshopPresentation.pdf

[3] Available at http://www.arb.ca.gov/fuels/diesel/altdiesel/20111013_CARB%20Final%20Biodiesel%20Report.pdf

PRELIMINARY ANALYSIS SUBJECT TO REVISON

Table 1. 2006 Cummins Engine (Dynamometer Testing)

Model: NOx = A + B · BioPct

(Note: Dataset does not yet include the data on B5.)

Bright yellow highlight indicates result is statistically significant at 95% confidence level or better.
Light yellow highlight indicates result is statistically significant at the 90% confidence level or better.

Biodiesel Type	Test Cycle	R^2	Intercept A	BioPct Slope B		Predicted NOx Increase for B5	Predicted NOx Increase for B10
			Value	Value	p value	% Change	Pct Change
Soy-based							
	UDDS	0.997	5.896	0.0100	0.001	0.8%	1.7%
	FTP	0.995	2.024	0.0052	0.003	1.3%	2.6%
	40 mph	1.000	2.030	0.0037	<0.0001	0.9%	1.8%
	50 mph	0.969	1.733	0.0028	0.016	0.8%	1.6%
Animal-based							
	UDDS	0.847	5.911	0.0021	0.080	0.2%	0.4%
	FTP	0.981	2.067	0.0031	0.001	0.7%	1.4%
	50 mph	0.887	1.768	0.0011	0.058	0.3%	0.6%

Turning to the importance of the magnitude of the NOx increases, the South Coast Air Quality Management District (SCAQMD) Final 2012 Air Quality Management Plan estimates 2014 NOx emissions from on-road and non-road diesel vehicles to be approximately 190 tons per day.[4] This means that the approximately 1% increase in NOx emissions due to B5 blends translates to an increase of about 2 tons per day in NOx emissions in the South Coast Air Basin alone, while an approximately 2% increase at B10 equals 4 tons per day within that basin. Continuing to B20 the impact would be 8 tons per day. That these are significant increases is clearly evidenced by the fact that both CARB and SCAQMD have adopted numerous emission control measures targeting NOx that have achieved reductions that are similar to or smaller than these values.

Instead of acknowledging emissions testing data CARB itself generated that show increases in NOx emissions associated with B5 and B10 blends, CARB staff instead claims that more research is necessary before it can consider mitigation of B5 impacts: [5]

> *Staff is currently contracting with the University of California at Riverside to develop data to determine whether there are significant adverse air-related impacts from the use of B5 blends sufficient to warrant mitigation in the future.*

[4] See Figure 3-9 available at http://www.aqmd.gov/aqmp/2012aqmp/Final-February2013/MainDoc.pdf
[5] See page 4 of CARB's White Paper "Discussion of Conceptual Approach to Regulation of Alternative Diesel Fuels", February 15, 2013 which is available at http://www.arb.ca.gov/fuels/diesel/altdiesel/20130212ADFRegConcept.pdf

This represents an impermissible deferral of analysis and mitigation of significant impacts under CEQA. Moreover, as participants in the process that lead to the adoption of CARB's Low Carbon Fuel Standard (LCFS) regulation in 2009 where CARB adopted indirect land use change (ILUC) values based on preliminary and unsubstantiated modeling results claiming a need to rely on the best available science, Growth Energy finds CARB staff's current position that ignores actual data showing NOx increases from low level biodiesel blends to be unsupported.

2. The Proposed "Significance Threshold" for Biodiesel would Allow Significant Increases in NOx Emissions to Occur in the South Coast and San Joaquin Valley Air Basins Exacerbating Existing Air Quality Problems

In addition to CARB staff's failure to analyze low-level biodiesel blends, the "significance threshold" proposed by CARB staff for biodiesel use in California would allow significant increases in NOx emissions due to biodiesel use to occur in the South Coast and San Joaquin Valley air basins that experience the worst air quality problems in the state.

According to CARB staff's presentation for the September workshop,[6] staff is proposing to evaluate the significance of NOx increases due to biodiesel use on a statewide rather than a regional basis. Given the proposed use of a statewide average biodiesel level and the B10 significance threshold, the potential exists for significant quantities of B20 or even higher levels of biodiesel blends to be used without mitigation in areas of the state with significant air quality problems, such as the South Coast and/or San Joaquin Valley air basins. At this point, even CARB staff acknowledges that use of B20 blends results in significant NOx increases and as noted above based on CARB's own test data B20 use in the South Coast Air Basin could increase NOx emissions by as much as 8 tons per day in 2014.

Given the severe air quality problems that exist in the South Coast and San Joaquin Valley air basins, CARB must modify the proposed ADF regulation so that it guarantees that increased NOx emissions related to biodiesel use would not occur in these areas. The reduction of NOx emissions is important, particularly in light of CARB's "Vision for Clean Air,"[7] which demands the elimination of NOx emissions from diesel engines in both air basins as a perquisite for achieving the state's air quality goals.

3. The Proposed Transfer of Credit for Reductions in NOx Emissions Generated by Low NOx Diesel Producers to Offset Increases in NOx Emissions Generated by Biodiesel Producers is Not Equitable

[6] See slide 18 of the staff presentation for the September 5th workshop which is available at http://www.arb.ca.gov/fuels/diesel/altdiesel/20130905ADFWorkshopPresentation.pdf
[7] See http://www.arb.ca.gov/planning/vision/docs/vision_for_clean_air_public_review_draft.pdf

According to CARB staff's presentation at the September workshop,[8] staff is proposing to directly offset increases in NOx emissions resulting from the use of biodiesel with reductions in emissions due to the use of "low NOx" diesel fuels, which are defined by specific properties as shown in the staff presentation for the September 5th workshop.[9] To date, however, we are unaware of any information or explanation from CARB staff as to why producers of low NOx diesel fuels should be forced by CARB regulations to surrender credit for the NOx emission reductions their fuels achieve in order to benefit the producers of biodiesel fuels which increase NOx emissions.

Given that the production of low NOx diesel fuel is not currently mandated by any existing CARB regulation, the resulting emission benefits should be considered "surplus," and could presumably be used to generate Mobile Source Emission Reduction Credits under CARB regulations.[10] Further, the use of such fuels by fleets or distribution of such fuels by fuel providers could potentially be considered to be projects that qualify for incentive funding under the Carl Moyer Program.[11]

Instead of forcing producers of low NOx diesel fuels to transfer the credit for the NOx reductions attributable to their products without compensation to producers of biodiesel fuels that increase NOx emissions, CARB should establish a market mechanism to incentivize the production of low NOx fuels and to disincentivize the production of NOx-increasing biodiesel fuels. The most logical approach to accomplish this would seem to be providing NOx reduction credits to producers of low NOx fuels under the LCFS regulation while assigning NOx emission debits to producers of biodiesel and then requiring the latter to purchase and surrender credits sufficient to offset the increases in NOx emissions associated with their products.

4. The Proposed Treatment of Biodiesel and Biodiesel Blends Used in "New Technology Diesel Engines" (NTDEs) is Not Equitable With CARB's Treatment of Other Fuels

In addition to defects with the proposed ADF regulations described above, we are unaware of any published analysis or supporting data that the use of biodiesel at any concentration in NTDE's would not result in increased NOx emissions. The rationale for this treatment appears to be an assumption that the advanced emission control systems found on NTDEs eliminate any impact of fuel composition on emissions of NOx and potentially other pollutants.

Our primary concern with this proposal is that CARB staff has not provided any supporting data or analysis. In addition, if NTDEs are truly insensitive to fuel composition impacts, CARB should make changes similar to those proposed by biodiesel for other fuels. More specifically, if CARB staff's assumption that NTDE emissions are not sensitive to fuel composition is in fact correct, it follows that there is no longer any need to use CARB diesel fuel in NTDEs instead of less expensive federal diesel fuels which could be substituted without any adverse emission impacts.

---

[8] See slide 19 of the staff presentation for the September 5th workshop which is available at http://www.arb.ca.gov/fuels/diesel/altdiesel/20130905ADFWorkshopPresentation.pdf
[9] See slide 24 of the staff presentation for the September 5th workshop which is available at http://www.arb.ca.gov/fuels/diesel/altdiesel/20130905ADFWorkshopPresentation.pdf
[10] See http://www.arb.ca.gov/msprog/mserc/mserc.htm
[11] See http://www.arb.ca.gov/msprog/moyer/moyer.htm

Clearly, CARB could develop a "significance threshold" for the sale of federal diesel fuel in California similar to that proposed for biodiesel which would achieve this objective while providing the benefit of reduced diesel costs without adverse air quality impacts. Growth Energy therefore encourages CARB staff to revise the ADF to avoid these impacts.

Sincerely,

David Bearden

David Bearden
General Counsel

777 North Capitol Street, NE, Suite 805, Washington, D.C. 20002
PHONE 202.545.4000 FAX 202.545.4001