

Clerk of the Board
Air Resources Board
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Via Electronic submittal: <http://www.arb.ca.gov/lispub/comm/bclist.php>

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A 2nd Opinion, Inc. thanks the California Air Resources Board for the opportunity to submit comments on behalf of its client Neste Oil concerning the MODIFIED REGULATION ORDER that was posted on July 20, 2009.

CARB has made significant improvements in the regulatory language. However, as is common to any document of this magnitude, some additional fine tuning is required. To facilitate this I have identified the needed adjustments both by page number (based upon the lcfsmodtxt.pdf document) and by regulatory section.

Pages 1, 2, 4 & 5, § 95480.1. (a)(11): The use of the term ("B100") in § 95480.1. (a)(11) Neat biomass-based diesel ("B100"); conflicts with the definitions in §95481.(a)(2) "B100" means biodiesel meeting ASTM D6751-08... and §95481.(a)(9) "Biomass-based diesel" means a biodiesel (mono-alkyl ester) or a renewable diesel that complies with ASTM D975-08ae1.... The term ("B100") should be deleted from § 95480.1. (a)(11). There are more references to B100 in the text that tie B100 to biodiesel. Deleting ("B100") from § 95480.1. (a)(11) does not interfere with those uses and is the best solution to this conflict.

Page 5 §95481.(a)(15): The lack of mention of renewable diesel in:

§95481.(a)(15) "Diesel Fuel Blend" means a blend of diesel fuel and biodiesel containing no more than 5% (B5) biodiesel by weight and meeting ASTM D975-08ae1, (edited December 2008), *Specification for Diesel Fuel Oils*, which is incorporated herein by reference.

may lead to confusion unless the regulations indicate that the diesel fuel may contain renewable diesel. Because renewable diesel is diesel fuel as defined in:

13 CCR §2281(b) "Diesel fuel" means any fuel that is commonly or commercially known, sold or represented as diesel fuel, including any mixture of primarily liquid hydrocarbons – organic compounds consisting exclusively of the elements carbon and hydrogen – that is sold or represented as suitable for use in an internal combustion, compression-ignition engine.

I recommend the following clarifying language:

§95481.(a)(15) "Diesel Fuel Blend" means a blend of diesel fuel (including renewable diesel) and biodiesel containing no more than 5% (B5) biodiesel by weight and meeting ASTM D975-08ae1, (edited December 2008), *Specification for Diesel Fuel Oils*, which is incorporated herein by reference.

Page 37, §95485(a)(1) Table 4. The energy content of "Neat Biomass-based diesel (gal)" varies. I suggest you publish representative energy contents for renewable diesel and biodiesel with a footnote that energy contents may vary depending upon process and feedstock selection.

Page 44, §95486 (b)(1) Table 7. It is good that the Carbon Intensities (CI) in Table 7 are draft values. CARB is urged to adjust the CI's for RD to reflect our comments on the individual pathways for RD. Specifically we are asking CARB to:

1. Reduce RD's Tank to Wheel $\text{gCO}_2\text{e}/\text{MJ}$ to reflect RD's lower NOx and THC emissions.
2. Reduce RD's Transport & Distribution energy consumption and $\text{gCO}_2\text{e}/\text{MJ}$ emissions to reflect the fact that RD will be distributed like ULSD. For RD produced in commingled processes the Transport & Distribution numbers should be identical to those of ULSD because the hydrotreater products are comingled. For RD produced in separate processes, the optimum blending location is at refineries. Therefore, its Transport and Distribution factors should be the ULSD Transport and Distribution numbers plus some Transport & Distribution factors to move the RD from its processing facility to the typical blending refinery.
3. In the draft pathways for biomass based diesels from soy we noticed inconsistent treatment of the renewable propane and glycerin co-products. To eliminate this inconsistency we are recommending that the net energy and $\text{gCO}_2\text{e}/\text{MJ}$ benefits of the co-products be allocated to the biomass-based diesel products. This is a reasonable because:
 - a. The GHG benefits of the co-products are real.
 - b. The biomass based diesel production caused the renewable co-product production. Thus the GHG benefits belong to the biomass based diesel.
 - c. Allocating the net fossil propane or glycerin offsets to biomass based diesel more accurately reflects the full GHG benefits of the biomass based diesel life cycle.
 - d. Doing so simplifies both the regulatory and enforcement process by eliminating the need to develop complex tracking and enforcement regulations for a relatively small volume of renewable fuel that is chemically identical to fossil based molecules.
 - e. Improves the material balance for the pathway.
 - f. Consistent treatment of co-products increases the credibility of life cycle analyses.
4. The RD from Tallow pathway assumed the maximum hydrogen consumption per unit of product. The average of the minimum and the maximum consumption rates would be more accurate than either extreme. Please rerun the case with a more reasonable hydrogen consumption assumption.

In our comments on the RD from Tallow pathway we calculated an approximate impact of items 1, 2 & 3 on both the RD from Tallow and RD from Soy pathways. We did not calculate the impact of the hydrogen assumption nor did we calculate estimates for the impact on the biodiesel pathways.

Because the glycerin yield is so much larger than the propane yield we anticipate the impact of item 3 will be much greater on the biodiesel pathways than it was on the RD pathways.

While item 3 will cause there to be some fossil carbon emissions in the biodiesel Tank to Wheel emissions, the overall net impact will probably be favorable for biodiesel.

Because this methodology will increase the net energy produced per acre of soy beans, the Indirect Land Use Change in $\text{gCO}_2\text{e}/\text{MJ}$ will decrease. For example if the draft ILUC for RD from soy was $40 \text{ gCO}_2\text{e}/\text{MJ}$, it should be about $35 \text{ gCO}_2\text{e}/\text{MJ}$ with these corrections.

Pages 48 & 50 §95486(c) & §95486(e)(2)(A) Substantiality. We understand the need for something like "5-10" substantiality. Without it CARB staff would be even more overworked or CARB would have to charge very high fees for all type 2A and 2B pathway petitions. However we would like to

recommend one modification. 5 gCO₂e/MJ is probably acceptable for pathways with CI's greater than 50. But when pathway CI's fall below 50 we should consider a 10% improvement to be substantial. I raise the question not because I want CARB to consider a 4 CI improvement for a pathway with a 40 CI but because I do not want CARB to inadvertently stop research and development on ways to reduce carbon emissions of processes that have pathway CI's of 25. Engineers are good at making things work better in small increments. When those little pieces add up to 8 or 9% they will look real hard for the last 2 or 3 % to get across the threshold. But, if the threshold is 20% they are more likely to stop looking and to not implement the small improvements. If Global Warming is a real problem, we cannot afford to stop R&D on a process because it is better than its competitors or good enough. If we can afford to stop R&D, then we do not need the Low Carbon Fuel Standard.

Page 54 §95487(c)(3)(B) Biomass based diesel and Multimedia Evaluation. Because renewable diesel is both a diesel fuel as defined in 13 CCR §2281(b) which is exempt from the multimedia requirement under §95487(c)(2)(B) and a biomass-based diesel fuel as defined in §95481 (a)(9), §95487(c)(3)(B) should be edited to read as follows:

"...Fuels currently subject to this provision include ~~biomass-based-diesel~~, and electricity. ...