A 2nd Opinion, Inc.
Clean Fuels and Regulatory Issues
Cal Hodge, President

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Clerk of the Board, Air Resources Board
1001 I Street
Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

Comments on: Third Notice of Public Availability of Modified Text and Availability of Additional Documents and Information re LCFS

Thank you for the opportunity to comment on the Low Carbon Fuel Standard (LCFS) regulations and associated documents. I will focus on what I believe to be an error on page 2 that could potentially limit the fuels available to lower the Carbon Index (CI) of California's future diesel fuel supply and the recently released pathways.

Background

A 2nd Opinion, Inc. (A_2O) is submitting these comments on behalf of its client, Neste Oil. A_2O's President Cal Hodge has over 40 years experience in the fuels industry. He learned to make unleaded gasoline before the first Earth Day. He helped formulate Amoco's first unleaded regular gasoline. He has been involved with California fuel regulations since the early 1990's. He is proud to have been part of the team of regulators, fuel providers and auto makers that have reduced automotive pollution by 99% since the first Earth Day. He is excited to be working on the next generation of fuels that reduce man's carbon footprint as well as automotive emissions of oxides of nitrogen (NOx), Volatile Organic Compounds (VOC), Particulate Matter (PM) and other Toxic Air Pollutants (TAP). Now let me tell you about Neste.

Neste Oil Corporation is a refining and marketing company concentrating on low-emission, high-quality traffic fuels. The company is the world's leading supplier of renewable diesel. Neste Oil's refineries are located in Porvoo and Naantali and have a combined crude oil refining capacity of approx. 260,000 barrels a day. The company had net sales of EUR 15 billion in 2008 and employs around 5,200 people. Neste Oil's share is listed on the NASDAQ OMX Helsinki.

Neste Oil has been selected into the Dow Jones Sustainability World Index and awarded 'Best in Class' recognition for its social accountability by Storebrand. The company is also featured in the Ethibel Pioneer Investment Register and included in Innovest's Global 100 list of the world's most sustainable corporations. Further information: www.nesteoil.com.

The Low Carbon Fuel Standard (LCFS) and the Indirect Land Use Change (ILUC) issue are important to Neste because Neste's scientists have developed and commercialized a process that makes renewable diesel fuel from vegetable oils and animal fats. Because it uses the same biomass-based feedstocks that are used to produce biodiesel mono-alkyl esters it has about the same (actually slightly better due to differences in process and distribution efficiencies and NOx emissions) full life cycle greenhouse gas (GHG) benefits as the esterification technology. By using hydrogen instead of methanol derived from fossil fuel, Neste's NExBTL process produces hydrocarbons that are suitable for use in all diesel engines at all concentrations. Renewable diesel is fully compatible with typical diesel fuel and can be used seamlessly throughout the existing blending, distribution and consumption infrastructure. This reduces the carbon emissions associated with its distribution to the consumer.

Renewable diesel fuel not only provides outstanding GHG benefits it also has an ultra high blending cetane and contains essentially no aromatics or sulfur. All three properties are key to making CARB Ultra Low Sulfur Diesel (CARB ULSD) and Texas Low Emissions Diesel (TxLED) burn more cleanly than their EPA ULSD counterpart. Neste's renewable diesel meets or exceeds the standards for all three ULSD's. When added to diesel fuel it lowers exhaust emissions, including NOx, which is a benefit California needs for ozone compliance. This reduces the carbon emissions associated with vehicle emissions.

After years of research and development, Neste , recognizing the environmental significance of the technology, started up the world first commercial scale (170,000 tonne/year(t/y), 57 million gallons per year(mmg/y)) in 2007 at their refinery in Porvoo, Finland. A second 170,000 t/y facility started up in 2009 in Porvoo. An 800,000 t/y plant is scheduled to be on line in Singapore in 2010 and another 800,000 t/y plant is due for startup in Rotterdam in 2011. Product from the Singapore plant is expected to be available to help California meets its LCFS beginning in the 2nd half of 2010.

Regulatory comments

On page 2 in §95480.1(a)(11) the use of the term ("B100") is inconsistent with §95481(a)(2) "B100" means biodiesel... and has the potential to exclude renewable diesel from "applicability". To resolve the inconsistency("B100") can simply be deleted from §95480.1 (a)(11). This can be done without changing the intended meaning of §95480.1(a)(11) because biomass-based diesel is defined in §95481(a)(9).

Pathway comments

We are disappointed that the "Detailed California-Modified GREET Pathway for Conversion of Midwest Soybeans to Renewable Diesel", Stationary Source Division Release Date: December 14, 2009 Version: 3.0 continues to assume that the distribution pathway for renewable diesel fuel is identical to that of biodiesel, that its tank to wheel emissions are the same as ULSD and that you have chosen to allocate energy inputs and carbon emissions to the co-product renewable propane rather than just take credits similar to those taken for bagasse in the ethanol from sugar cane pathway.

Because renewable diesel is fully compatible with ULSD in all concentrations the carbon emissions associated with its distribution are going to be more like those of ULSD (much of which is pipelined) than those of biodiesel (most of which is trucked to terminals for blending).

The Biodiesel and Renewable Diesel Research Study confirms that renewable diesel reduces exhaust emissions relative to ULSD. This finding should be reflected in the renewable diesel fuel pathways.

A renewable diesel pathway that takes renewable energy and carbon credits for renewable propane like the credits taken for bagasse in ethanol from sugar cane pathway is equally as valid as a pathway that allocates energy and carbon emissions to co-products.

ILUC comments

We like the preliminary ILUC value for biodiesel of 42 $gmCO_2e/MJ$ better than the current 62 $gmCO_2e/MJ$ estimate.

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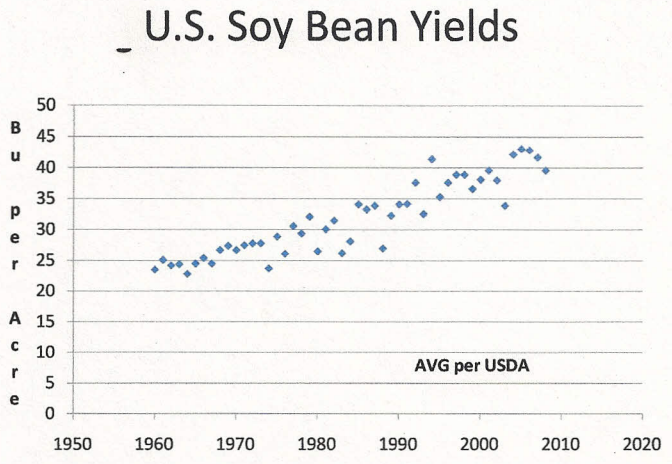
19 Serenade Pines Place ♦ The Woodlands, Texas 77382-2005

Phone: 281.844.4162 ♦ Fax: 281.966.6914 ♦ Email: A2ndOpinionInc@aol.com

We noticed the comment "Since yields for soybean (three year running averages) have remained relatively stable since the baseline year of 2004, an external adjustment was not necessary for soy biodiesel." Is this a valid assumption? In the United States the average soy bean yield is about 40 bushels per acre and increasing at the rate of about 0.4 bushels per acre per year. (See Figure 1.) There is no reason to assume that soy farmers have reached a maximum yield because the record yield was 139.4 in 2006 and 154.7 bushels per acre in 2007. Would changing this assumption to match long term yield trends result is a lower ILUC factor for soy renewable diesel?

Figure 1



Crop rotation in which soy beans are rotated with corn, increases corn yields per acre. See http://www.agry.purdue.edu/staffbio/Vyn_PandC26.pdf Does the GTAP model take this fact into account?

Intuitively it seems that the higher the energy yield per acre the lower the ILUC carbon factor should be. The ethanol yield per acre of sugar cane is almost twice the ethanol yield per acre of corn. The ILUC factors for corn ethanol (30) and sugar cane ethanol (46) are counter intuitive. This is important because soy has a relatively low diesel yield per acre and until we understand the basis for what seem to be counter-intuitive ILUC values we will not be able to estimate or defend preliminary ILUC values for alternative crops with much higher diesel yields but little or no GTAP data. So we will appreciate any assistance you can provide in increasing our understanding of this counter-intuitive finding.

If you have questions you may contact Cal Hodge at A2ndOpinionInc@aol.com and/or Steven Gust at steven.gust@nesteoil.com.

For A 2nd Opinion, Inc on behalf of its client Neste Oil.

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