

January 8, 2014

Richard Corey, Executive Officer  
California Air Resources Board  
Headquarters Building  
1001 "I" Street  
P.O. Box 2815  
Sacramento, CA 95812

Re: Comments on the LCFS Fuel Pathway Application for Biofuels produced from Palm Oil Fatty Acid Distillates (PFADs)

Dear Mr. Corey,

The National Wildlife Federation, Natural Resources Defense Council, and the Union of Concerned Scientists appreciate the opportunity to provide comments about the proposed treatment of palm fatty acid distillates (PFADs) under the California Low Carbon Fuel Standard (LCFS). Our organizations are long-time supporters of California's Low Carbon Fuel Standard and appreciate the opportunity to work with ARB management and staff on the continued, successful implementation of the program. Staff has worked hard to successfully include hundreds of low-carbon fuel pathways under the LCFS, demonstrating the enormous flexibility and technological options included by the program.

However, the recent "Method 2B" application by Endicott Biofuels for biodiesel produced by PFADs raises numerous questions and concerns. Our goal is to ensure the environmental integrity and "currency" (i.e., emission reduction credits) of the LCFS program is accurate and ARB avoids creating incentives that are not justified. We request that ARB not approve the proposed pathway and revisit the methodological treatment of PFADs while also making the assessment more transparent for public review.

**1. *The current application appears to assign unsubstantiated emission values and credits that tend to under-estimate emissions.***

Much of the information in the application has been redacted, making public review of the lifecycle pathway challenging. We urge ARB to provide for further public review of the methodology and estimates. It appears that applicants assume the emissions burden of the PFAD feedstock to be equal to that of corn distillers grain (DDG), assuming a displacement methodology. Given there are many uses for PFADs, this assumption seems difficult to justify. In addition, the large price differential between PFADs and DDG, suggesting PFADs and DDG are not substitutes for each other in the marketplace.

The application by Endicott also proposes to receive significant credit for producing “pitch,” similar to residual bottoms, by assuming it replaces No. 6 heavy fuel oil in ocean-going vessels. Evidence should be provided that this product is actually being sold as a replacement fuel for the market. In general, the production of residual fuel oil should be treated as a separate product stream. Currently, the LCFS does not provide credits for biofuels used either in marine application or out-of-state. We believe that ARB should avoid establishing this policy precedent without further policy consideration.

**2. ARB should not treat PFAD as a waste or residue and should conduct a new lifecycle assessment that properly reflects both direct emissions and indirect land use change.**

It is hard to see how PFADs, a co-product of the same mills and plantations that produce palm oil, would have no land use impacts or market impacts ascribed to it. The overall result is to incorrectly assign PFADs with one of the lowest carbon-intensity scores for the program. Since the 1990s, expansion of palm plantations have been a major factor in the loss of rainforest cover in roughly 40% of the lands in Indonesia’s largest oil palm producing region (Riau Province). Due to this conversion, approximately 27 million metric tons of emissions were released annually over the 1990s through 2000, continuing at a rate of about 5 million metric tons annually over the 2000s through 2012.<sup>1</sup>

Accounting for these direct and indirect impacts is critical for accurate lifecycle accounting. Absent an understanding of the market mediated impacts and full system expansion analysis, the preferred method would be to allocate the emissions for growing, crushing, and refining palm oil between the refined palm oil, the PFADs, palm kernel oil, and the small amount of palm kernel meal that is produced. All direct emissions such as methane from the effluent ponds on the palm oil mills and carbon dioxide emissions from the managed peat soils at the plantations, should be included.

All indirect – or market mediated carbon impacts – should also be included. Palm oil and co-product production like PFADs is associated with major indirect land use change (iLUC) emissions. The European Commission sponsored report by the International Food Policy Research Institute found that palm oil caused significant indirect land use change emissions of 54 g CO<sub>2</sub>e per megajoule.<sup>2</sup> The U.S. Environmental Protection Agency’s preliminary lifecycle analysis of palm oil-based biodiesel concluded that its emissions, especially from land use, were far too high to meet the 50% GHG eligibility criteria for biodiesel. Given the economic value of PFADs has been approximately 80% that of palm oil over the past five years, an economic allocation methodology would result in PFADs having 80% of the iLUC impacts as palm oil (on a per MJ basis).

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<sup>1</sup> F. Ramdani and M. Hino (2013), “Land Use Changes and GHG Emissions from Tropical Forest Conversion by Oil Palm Plantations in Riau Province, Indonesia,” PLOS ONE, July 2013, Volume 8, No 7, e70321. These estimates reflect emissions from drained peatlands and forest conversion.

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0070323>

<sup>2</sup> [http://www.theicct.org/sites/default/files/publications/ICCT\\_IFPRI-iLUC-briefing\\_Nov2011-1.pdf](http://www.theicct.org/sites/default/files/publications/ICCT_IFPRI-iLUC-briefing_Nov2011-1.pdf)

The above emissions are significant and, depending on the peat emission rate, can easily be the same or more than the lifecycle emissions from petroleum-based diesel fuel. But by assigning these emissions mainly to the palm oil “ledger” and not to other products like PFADs that are used for fuel, it creates large distortions in the carbon accounting and the fuels market by inaccurately giving PFADs an ultra-low carbon score. In some ways, this is analogous to saying petroleum refinery produces ultra-low carbon petroleum motor oil by assigning a disproportionate share of emissions to gasoline.

**3. *PFAD has an economic value comparable to palm oil and is not low-valued feedstock or waste.***<sup>3</sup>

PFAD is a highly demanded feedstock used in soaps, animal feed, oleochemicals and other products and is more or less 100% utilized already. Evidence of high demand exists within PFAD pricing. In 2012, PFAD prices averaged \$813.50 per metric ton, just 15% less than refined, bleached, deodorized palm oil.<sup>4</sup> From 2007 to 2012, PFADs were valued at approximately 80% of palm oil. Like palm oil, PFAD is highly marketable and its diversion into fuel markets will cause consumers to seek substitutes elsewhere. The most likely replacement oils for PFADs in other applications are palm oil or fuel oil, or other FADs that also have existing uses and typically inelastic supply. Thus, from a lifecycle approach, it makes little sense to effectively treat these as waste or residue. Clearly reducing diesel use by increasing fuel oil use serves little climate purpose, and palm oil is associated with major iLUC emissions. In fact, the government of the United Kingdom has determined that PFADS should be considered a 'product' and *not* a waste or residue for the purposes of incentives under Europe's Renewable Energy Directive.<sup>5</sup>

For the above stated reasons, our organizations respectfully urge ARB to provide additional information for public review and re-evaluate the PFAD application with a full direct and indirect land use change analysis together with other market mediated effects. We look forward to productively working with the agency to address our concerns.

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<sup>3</sup> We note that the Endicott Biofuels application (p. 4) states “Since PFAD is a low valued co-product generated during the production of edible oil, its production is not included within the analysis... incremental demand for this material will have no effect on primary demand for palm oil and thus will not drive increased palm plantings.”

<sup>4</sup> Between 2007 and 2012, the price ranged from a low of \$301 to a high of \$1,016 (US/tonne). The average ratio of the price of PFAD to crude palm oil was 0.77 during this time period.

[http://econ.mpob.gov.my/upk/monthly/bh\\_monthly\\_10.htm](http://econ.mpob.gov.my/upk/monthly/bh_monthly_10.htm)

Very truly yours,

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