

December 13, 2023

Liane M. Randolph
Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Comments for Tier 2 Pathway Application No. B0520

Dear Chair Randolph:

Life Cycle Associates has reviewed Application No. B0520, the Tier 2 fuel pathway for Renewable Diesel derived from soybean oil produced in Argentina, and is writing in support of the application.

While supporting the application, our analysis concludes that the proposed pathway CI may be even lower than the 61.98 gCO₂e/MJ value submitted in the application. The primary basis for the reduction lies within the “conservative” Indirect Land Use Change (ILUC) default value at 29.10 gCO₂e/MJ. It is our view that the unique nature of second crop production, in this case soybeans that are produced on land that also produces wheat, contributes to a further reduction in the ILUC value.

We support the conclusions of the application within the “Attachment A – Farming Analysis” that the CA-GREET 3.0 default emission factor for soybean farming is a conservative value for soybean oil sourced from Argentina.” While this analysis proceeded with using the more conservative default GREET 3.0 value of 59.1 gCO₂e/lb oil for crushing emissions compared to the 36.3 g CO₂e/lb cited in the application, the conservative value avoids the challenges of third-party verification from soy crushing facilities. The use of a conservative value includes 848 Btu of coal/lb of oil which is not a process fuel for soy crushing plants in Argentina.

We further support the assertion in “Attachment B-ILUC Analysis”, that “the value of 29.10 gCO₂e/MJ for renewable diesel/biodiesel produced from soybean may be a conservative value for Argentina.” The application asserts that double cropping is the leading factor in this assessment. Argentina has seen a significant change in soybean production over the past decade. By analyzing the yield price elasticity (YPE) within GTAP-BIO, the application asserts that a more accurate elasticity for Argentina is closer to 0.3, as it is a country with a higher likelihood to be double cropped. Rather than take this approach, the current elasticity in the default value is derived by averaging 30 scenarios, using a range of elasticities.

Furthering support for a lower LUC value for the feedstock in this pathway is the CORSIA default value for global soybean oil at 25.80 gCO₂e/MJ¹. The global CORSIA value is higher than the US soy oil HEFA value but lower value than the LCFS value. It was established without accounting for the second cropping identified in the application. Based on production practices outlined in the pathway, the growth of double cropping increases soybean meal production, but on the same land area. While limits on lipids have been contemplated for the LCFS, there has been no justification based on sound ILUC modeling to provide support to such proposals.

¹https://www.icao.int/environmental-protection/CORSIA/Documents/CORSIA_Eligible_Fuels/ICAO%20document%2006%20-%20Default%20Life%20Cycle%20Emissions%20-%20June%202022.pdf

Growing second drop soybeans results in an increase in the production of soybean meal, which is taken into account in the GTAP modeling.

In our own GTAP analysis, we modeled shocks to biodiesel demand in the U.S. along with shocks to the EU-27, and separately to LAEEX. LAEEX is the region in GTAP-BIO that includes Argentina, along with Mexico, Colombia, and Venezuela. Preliminary results show that the landcover change within the region and assuming a YPE of 0.25, resulted in no change to unmanaged land and a net change of only 876 hectares across the 18 AEZ regions. Our expectation is this change would be reduced if double cropping continues on the same trajectory in Argentina for soybeans and the YPE was raised as outlined in Attachment B. Our analysis is in alignment with the FAO chart cited in Attachment-B, demonstrating “no significant land cover changes from non-crop land with high carbon stock”.

Based on our analysis, we conclude that an even lower ILUC for this pathway could be justified.

We appreciate the opportunity to provide comments in support of this application while continuing to advance the accurate depiction of unique cropping practices like second crop soybeans in Argentina.

Sincerely,



Stefan Unnasch
Managing Director
Life Cycle Associates