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Mr. Anil Prabhu Manager
Fuels Evaluation Section
California Air Resources Board
P.O. Box 2815 Sacramento, CA 95812

Re: National Biodiesel Board Comments on BP Tier 2 Co-Processing Pathway Application B0018

Dear Mr. Prabhu:

Thank you for the opportunity to respond to comments regarding the BP Cherry Point Refinery Co-processing Tier 2 Application in the California Low Carbon Fuel Standard.

BP has many years of experience in applying Co-processing technology across three continents and is proud to be an early adopter of Co-processing in the USA at the BP Cherry Point refinery and applaud CARB for the work they have done to facilitate its adoption.

BP believes that in refineries where Co-processing can be established; the technology will prove to be a very efficient and effective tool to support meeting GHG reduction targets in transportation fuel.

With respect to the issues raised by the National Biodiesel Board (NBB), we will address in turn under the headings used by the NBB: -

Procedural deficiencies

- The NBB stated that CARB never finalized and adopted the draft discussion paper as part of the 2018 rulemaking.
 - CARB made it clear at the time that the output was never intended to be part of any rulemaking but would simply be used for industry guidance. All output from the discussion papers were made available for public comment¹.
- Disagreement with lifecycle modelling
 - BP complied with the requirements of the Tier 2 application under the Low Carbon Fuel Standard.

Public Information

- The NBB claims that “refineries should be required to provide the same level of operational detail that has been made available by and for other industries”.
 - BP complied with the requirements of the Tier 2 application under the Low Carbon Fuel Standard and BP submitted all required information for the Tier 2 Application. Due to the rigorous review from CARB, the application process has taken more than a year to complete.

Verification of renewable content

- The NBB stated that BP should use ¹⁴C testing method ASTM D6866.

- BP believes that either ¹⁴C or mass balancing methodology should be available to co-processors and that the best method be used for the circumstance. It so happens that BP selected ¹⁴C testing as the most appropriate method in this instance. The pathway submitted uses ASTM D6866 to determine the renewable content.

Limitation on co-processing

- The NBB suggests that restrictions be applied to refinery Co-processing credit generation capability.
 - BP supports a free market approach to meeting GHG goals and believes that tilting the playing field to favor a specific sector is an impediment to utilizing the most efficient technologies.
- The NBB suggests that the application should be a part of the RICP.
 - BP complied with the requirements of the Tier 2 application under the Low Carbon Fuel Standard.

Additional Processing

- The NBB states that carbon intensity pathways should account for energy used when (and if) refineries isomerize co-processed fuels to improve cold flow performance.
 - BP responds that there was no isomerization process required for Co-processing.

Emissions

- The NBB argues that Co-processed renewable diesel is chemically indistinguishable from CARB diesel.
 - This statement is also true of renewable diesel not derived from Co-processing. BP's co-processed product meet the fuel registration requirements in 40 CFR Part 79 based on Health Effects Testing, ASTM D975, and the CARB Diesel specification. Any negative environmental and public health impacts would have precluded renewable diesel from meeting CARB's Multimedia program.

Technical Properties

- Concerns are expressed by the NBB at BP's ability to produce on-spec product.
 - BP's Co-processed product meets both ASTM D975 and CARB Diesel specifications.

Indirect Effects

- All indirect and direct impacts, upstream and downstream, have been included in the system boundary. For example, the electricity used for heating the tallow has been included.

Alternative Diesel Fuel (ADF) regulation

- §95481 (123) of the CARB LCFSⁱⁱ regulation defines Renewable Hydrocarbon Diesel as a motor vehicle fuel or fuel additive registered under 40 Code of Federal Regulations part 79 that includes the renewable portion of a diesel fuel derived from co-processing biomass with a petroleum feedstock. BP's co-processed product meets this definition. As such, as with renewable diesel derived from other means, this is not subject to ADF regulation.

Feedstock

- With regards to the two issues raised by the NBB with respect to the values, BP complied with the requirements of the Tier 2 application under the Low Carbon Fuel Standard.. Regarding the sourcing of the tallow, any transportation from the original rendering facility are included within the system boundary. For example if raw animal parts are sent to Vancouver then it would not be included, but any rendered feedstock would include the additional transport distance.
- BP did not use BC electricity mix as only the Canada mix is in the calculator. Actually, because the feedstock may come from the US side in the surrounding areas, BP used the US mix as it is more conservative compared to the Canada mix. BP used the standard input for the rendering in the CA Greet 3.0 model and no mass balancing was used. BP did not claim any low CI feedstock.
- The lower CI for rendering is due not to the difference in the emissions factor but rather due to the energy allocation credit given to the co-products. Without this energy allocation credit, the CI value for rendering would be the same.

Processing

- Regarding the question raised by the NBB relating to processing stage CI component:
 - BP would again state that there is no isomerization in the Co-processing process at BP Cherry Point Refinery. Additionally, emissions from Co-processing are allocated based on the energy of the co-products.
- The NBB speculates that CI differences between stand alone and Co-processed renewable diesel production may be caused by inconsistent system boundaries or an undatable baseline.
 - The system boundary is similar to a stand-alone RD facility and we have included all of the energy used. The emission factors are from the CA GREET 3.0. With respect to the points the NBB makes relating to energy expended outside of the system boundary:

- Electricity is included for feedstock receiving, including but not limited to heat tracing, pumps, and storage tanks for heating the feedstock tank. BP complied with the requirements of the Tier 2 application under the Low Carbon Fuel Standard.
- The NBB claims that the system boundary for Co-processing is narrower than that applied to stand alone plants.
 - BP complied with the requirements of the Tier 2 application under the Low Carbon Fuel Standard.
- In response to the concern raised with respect to the quality of the gas oil processed, Sulfur and Nitrogen were found to be comparable for the baseline and Co-processing data.
 - Sulfur baseline = 0.84 wt% and Co-Processing application data = 0.84 wt%.
 - For Nitrogen, the baseline was 528 ppm with 471 ppm for Co Processing application (N has much less effect on Hydrogen use).

CARB Operating Conditions

- Regarding the NBB statements on hydrogen makeup –
 - The hydrogen makeup is monitored on a continuous basis. As indicated above, the sulfur content is relatively constant. BP would support the NBB's suggestion for not having this monitoring requirement, but it is not overly burdensome.
- For the operating condition that is volumetric yield of renewable diesel.
 - The upper end of the range is above 1.00 in order to account for the monitoring that takes place on a batch basis for ¹⁴C determination. Managing tank heels can cause the ratio to exceed 1.00 from time to time.

The NBB's Recommendations

- BP complied with the requirements of the Tier 2 application under the Low Carbon Fuel Standard. In addition, BP has addressed all the recommendations in the previous parts of this letter.

BP thanks CARB in their support for advancing this Tier 2 pathway submission and hopes that the response provided has appropriately addressed the comments made in a manner that the pathway can now be finalized.

Sincerely,

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ⁱ https://www3.arb.ca.gov/fuels/lcfs/lcfs_meetings/lcfs_meetings_2018.htm

ⁱⁱ https://www3.arb.ca.gov/fuels/lcfs/fro_oal_approved_clean_unofficial_010919.pdf