KEYES, FOX & WIEDMAN LLP

October 13, 2014

Katrina Sideco
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Via email to: ksideco@arb.ca.gov

RE: Refinery Investment Credit- Comment Supporting Expansion to Alternative Crude Oils

Dear Ms. Sideco:

This letter is provided on behalf of my client, Agilyx LLC ("Agilyx"), regarding the Refinery Investment Credit ("RIC") provision that is under consideration by the Air Resources Board ("ARB"). The RIC provision was discussed in the Low Carbon Fuel Standard ("LCFS") workshop held on September 29, 2014, and was reflected in a proposed new provision, Cal. Code Regs. tit. 17, §95489(f). The RIC provision is a proposed addition to the Petroleum-Based Fuels section of the LCFS, §95489.

Summary

Agilyx supports the expansion of the Petroleum-Based Fuels section of the LCFS to facilitate the use of alternative crude oils at refineries that supply transportation fuels to California. We are proposing that ARB define alternative crude oils to include waste-based crude oils such as the product that Agilyx produces, as well as renewable crude oils. The inclusion of alternative crude oils would better enable the achievement of carbon intensity reductions since the finished fuels produced from alternative crudes are fungible with conventional petroleum finished fuels.

Based on my review, neither the RIC provision nor the current or proposed innovative crude oil provisions, §95486(b)(2)(A) 4, clearly authorize the use of alternative crude oils. To the extent that ARB recognizes the value and flexibility that alternative crude oils could supply to the LCFS, it appears that some expansion of §95486 is appropriate.

To illustrate this comment, I have attached a proposed subsection §95489(g), which is incorporated by reference. The proposed subsection provides one method that would enable the use of alternative crude oils in a manner consistent with the RIC proposal, the innovative crude oil provision, and the overall LCFS. We are open to discussions with ARB staff regarding alternative approaches to achieve this objective.

Agilyx

Agilyx is the first company in the world to effectively convert non-recyclable and low value waste plastics into crude oil through a patented system that is environmentally beneficial and reduces greenhouse gas ("GHG") emissions. The technology developed by Agilyx reduces the disposal of non-recyclable waste plastics, while creating a new source of domestic transportation fuel. Agilyx is currently optimizing its technology and developing commercial production facilities. As further discussed in this comment, the opportunity to generate credits in the LCFS program would facilitate increased production of crude oil from waste plastics utilizing Agilyx's technology. The transportation fuels produced from Agilyx's crude oil would have lower carbon intensity but would seamlessly integrate with existing supply and use infrastructure thereby facilitating the achievement of California's GHG reduction goals.

Overview of Low Carbon Fuel Standard

California's Global Warning Solutions Act of 2006 ("AB 32") established the state's goal of reducing GHG emissions to 1990 levels by 2020. The statute charged ARB with developing and implementing regulations in multiple sectors to achieve that goal. In January 2007, then Governor Arnold Schwarzenegger issued Executive Order S-01-07 calling on ARB to determine whether a low carbon fuel standard could be adopted under AB 32 to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.

In April 2010, ARB adopted a final set of regulations that is now codified at Cal. Code Regs. tit. 17, §§ 95480 et seq. (typically referred to as the "Low Carbon Fuel Standard" or "LCFS"). The LCFS applies to transportation fuels that are "sold, supplied, or offered for sale in California" and "any person who as a regulated party . . . is responsible for a transportation fuel in a calendar year." The LCFS applies to a wide range of transportation fuels and technologies including liquid and gaseous fuels such as biodiesel, hydrogen and bio-methane.

Consistent with AB32, the LCFS reduces GHG emissions by systematically reducing the carbon intensity of transportation fuels used in California ("CI"). The CI score of a fuel reflects not only GHG emissions created at the time of combustion, but also the GHG emissions associated with its extraction and refining, its transport to California, and any indirect land use change attributed to the feedstock based on GHG land use modeling. To obtain a valid CI score, low carbon fuel producers must establish that the fuel they produce conforms to the requirements of an existing LCFS pathway or must be approved by ARB for their own physical pathway.

Regulated parties (petroleum refiners and importers) must meet an annual standard for CI based on the total quantity of the transportation fuel they supply. The CI requirement decreases more rapidly in the later years of the program. Regulated parties typically meet this CI standard through some combination of blending low carbon fuels and acquiring LCFS credits from other

market participants. The increasingly difficult CI requirements and the ability to bank credits drive value for fuel producers that supply low CI fuels in California.

Refinery Investment Credit Provision

The current structure of the LCFS program provides standardized CI values for the two primary petroleum derived transportation fuels, gasoline and diesel fuel. Thus, reductions in carbon intensity achieved by refinery efficiency improvements do not reduce a regulated party's CI score and do not generate credits under the LCFS program. The ARB has recognized the opportunity to reduce CI intensity via this method and proposed the RIC provision to incentivize GHG reductions at refineries. As currently proposed, §95489(f) would require that the GHG emission reduction project be implemented during or after the year 2015, be approved by the Executive Officer, and reduce carbon intensity by at least 0.1 gCO2e/MJ (collectively, be an "Approved Project"). Approved Projects will generate credits for refiners.

Alternative Crude Oils

As currently proposed, the RIC provision does not clearly authorize projects that achieve GHG reductions at refineries through the utilization of alternatives to petroleum-based crude oil. The material that Agilyx produces is derived from waste plastics and may be referred to as a waste-based crude oil. There also exist alternatives to crude oil derived from renewable biomass, typically referred to as renewable crude oil. To our knowledge, ARB has not yet completed a life cycle analysis of a waste-based crude oil or a renewable crude oil (collectively "Alternative Crude Oils") so it is not yet established what the CI score of these Alternatives Crude Oils would be within the LCFS program. However, some refiners have supported the development of Alternative Crude Oils because these crudes would integrate into the existing refinery process. The addition of such Alternative Crude Oils to the LCFS would provide another method of compliance that is not limited by the blending and handling issues presented by many of the low carbon fuels, or the blend wall issue faced by ethanol. Hence these Alternative Crude Oils could facilitate a more rapid realization of California's GHG reduction goals.

The potential value of Alternative Crude Oils has been recognized by the Natural Resources Defense Counsel ("NRDC"). In October 2013, NRDC released an Issue Brief entitled, "Carbon Reduction Opportunities in the California Petroleum Industry," authored by Karen Law and Michael Chan of Tetra Tech Inc., and by contributing author Dr. Simon Mui of NRDC. See http://www.nrdc.org/energy/files/california-petroleum-carbon-reduction-IB.pdf, ("NRDC Issue Brief," page last viewed October 9, 2014.) The NRDC Issue Brief did not address waste-based crude oils such as those produced by Agilyx but did discuss renewable crude oils. The NRDC Issue Brief estimated that with full implementation, renewable crude oils could deliver .8 MMT in CO2e reduction per year. Notably, the NRDC Issue Brief found that the renewable crude oils could deliver the highest level of GHG reductions per unit of finished product of the alternatives considered. See NRDC Issue Brief at p. 5. The inclusion of waste-based crude oils in addition to renewable crude oils would expand the potential GHG reductions from this sector.

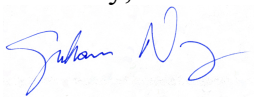
As is illustrated by the proposed §95489(g), the program expansion could be accomplished relatively simply from an implementation perspective. The Provisions for Petroleum-Based Fuels would need to be expanded to explicitly enable Alternative Crude Oil to generate credits. In addition, it would be necessary to establish an approval process for Alternative Crude Oils. Unlike efficiency improvements, Alternative Crude Oil projects would not fundamentally change the GHG performance of the facility. Instead, the projects would reduce GHG emissions in an amount proportional to the volume of Alternative Crude Oil supplied to the facility. Based on Agilyx's discussions, refiners are reluctant to enter long-term commitments to utilize a certain percentage blend of Agilyx's crude oil in their operations on a permanent basis. However, some refiners are willing to utilize defined quantities of alternative crude oil in their facilities if LCFS credits can be generated on a proportional basis.

As has been consistently noted in this comment, the utilization of Alternative Crude Oils does not impact the overall GHG efficiency of the refinery but instead substitutes a less GHG intensive feedstock for conventional crude oil. Therefore, for refineries that utilize an Alternative Crude Oil, it is not necessary to develop a comparison baseline for the entire facility. Instead, the calculation of GHG reduction may be achieved based solely on the CI score of the Alternative Crude Oil as compared to the reference crude oil. The proposed provision reflects the relative simplicity of determining this GHG reduction that will be achieved by a refinery that utilizes a defined quantity of an Alternative Crude Oil.

Conclusion

We appreciate this opportunity to submit a comment to the Air Resources Board. We recognize the leadership that California has shown in reducing the carbon intensity of transportation fuels. Please let me know if any clarification of this comment would be helpful.

Sincerely,



Graham Noyes

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