

**Biotechnology Industry Organization
Comments to the California Air Resources Board
On the Low Carbon Fuel Standard**

**2011 Program Review Working Draft Report
November 17, 2011**

The Biotechnology Industry Organization (BIO) appreciates the opportunity to submit comments on the Low Carbon Fuel Standard (LCFS) 2011 Program Review Working Draft Report (Draft Report or Report).

BIO is the world's largest biotechnology organization with more than 1,100 member companies worldwide. Among its membership, BIO represents over 85 leading technology companies in the production of conventional and advanced biofuels and other sustainable solutions to energy and climate change challenges. BIO also represents the leaders in developing new crop technologies for food, feed, fiber, and fuel. BIO member companies represent many of the low carbon fuel producers that will supply the State of California with the fuels for LCFS compliance.

BIO and its member companies commend the California Air Resource Board (CARB) for its openness, inclusiveness and transparency throughout the LCFS rulemaking process. As a member of the LCFS advisory panel, BIO has appreciated the opportunity to guide and comment on the CARB staff review of the LCFS regulation. BIO and its member companies have reviewed the draft report and wish to provide comments at this time, in response to specific chapter and issue areas highlighted within the report. As we have already provided written public comments on the Harmonization, Lifecycle Assessment (LCA), ILUC, Environmental Impacts, and Technology and Supply chapters, we have attached the full length comments as an appendix for reference purposes and listed our detailed comments on the Meeting the Targets, Economic Assessment, and Credit Market chapters herein.

BIO supports California's efforts to reduce the carbon intensity of transportation fuels and believes that biofuels can and must contribute significantly to this important objective. Our comments are outlined below.

Advisability for Harmonization

Please see attached comments in Appendix A.

Advances in Lifecycle Assessment

In the working draft report, CARB makes reference to the existing pathway approval process as being lengthy and laborious in the absence of a certification program. BIO asks CARB to elaborate on how a certification program will make this process less laborious. Can you provide details on how the certification process would work?

ILUC

Please see attached comments in Appendix A.

Environmental Impacts

Please see attached comments in Appendix A.

Technology Assessment, Supply, and Availability

Please see attached comments in Appendix A.

Meeting the Targets and Assessment of Whether Adjustments are Needed

Scenarios

BIO thanks CARB for providing updated 2011 illustrative scenarios for plausible compliance. Scenarios like those contained in the Meeting the Targets chapter can constructively demonstrate the various pathways by which LCFS compliance could be met. We did note that the diesel scenarios do not consider drop-in or sugar to diesel fuels. Indeed, BIO believes that there are several potential biofuel feedstock pathways which have yet to be considered. We have attached Appendix B, a newly released inventory¹ of advanced biofuels and chemicals projects, to illustrate to CARB the many and varied feedstocks which should be considered for near term and future scenarios.

It should also be noted that in the future, the updated CI values for ILUC could greatly alter these compliance scenarios- particularly for those fuels that are expected to increase in CI value, or conversely, decrease.

We would like to point out that Energy Information Administration (EIA) projections do not assume that the LCFS alone will impact the production of cellulosic or low CI fuels. BIO suggests that CARB develop a scenario that is above EIA projections based on the idea that the premiums garnered in California may incent faster investment in low CI fuels in California than might happen otherwise. Finally, we note that CARB is expected to make significant changes to Baseline and HCICO treatment on December 15, 2011. These changes could have a large impact on the inputs of these scenarios. Accordingly, CARB should re-do the scenarios with changes that the Board adopts on December 15th.

Low CI Fuels to California

There is nothing stopping the majority, if not all, of cellulosic and other low CI fuel from coming to the California market – particularly if the carbon premiums from California are greater than the shipping cost (generally about 20-25 cents per gallon). In fact, BIO believes that any price

¹ Advanced Biofuels and Chemicals Project Inventory, Biofuels Digest, November 16, 2011

premium LCFS allows over the shipping premium would improve the economics of production and incent the industry to grow faster than it would have grown without the LCFS.

LRT 2011 1Q & 2Q reported credits. BIO understands the difficulty in updating the LRT tool more often than quarterly. However, despite the initial results that demonstrate that the LCFS is working, we believe that it would be prudent to update the LRT tool on a more frequent basis.

Strategies for Meeting the Targets

- ***Several potential strategies were discussed, including: stockpiling initial credits, diversification of product slate, and investment.*** BIO supports regulators' ability to interchange ethanol and biodiesel credits. BIO also commends the work of other advisory panel members, who have created a market report that projects fuel volumes to 2015, understanding the limitations as several producers ramp up to commercial capacity and are either reluctant or unable to supply nameplate capacity.
- ***Technology Advancement.*** Several technologies are anticipated to produce fuels at commercial scale in the near term. As this market advances and becomes more integrated, the compliance structure should accommodate easy reporting of volumes and more than quarterly reporting, if possible.

Potential Alternatives for Compliance: Flexible Compliance Mechanism (FCM)

BIO supports an alternative mechanism that is transparent and clearly signals to investors and producers the appropriate market signals required to make investments into the market. BIO also supports a full review of these systems in order to ascertain what assumptions could be effective and to what end the system would be tested.

Economic Assessment

BIO Supports Updating the LCFS Economic Assessment

BIO supports CARB's 2-step approach to updating the economic assessment. CARB should provide an interim economic reassessment now, and hire an expert contractor over a longer period of time to do a more comprehensive economic reassessment of the LCFS. Below, please find BIO's initial comments and suggestions to help CARB's economic assessment accurately and effectively support the goals of the LCFS program.

Price Premium Signal

In the draft economic assessment chapter, CARB points out that "clearly CI value alone does not explain this market price differential" for biodiesel.² This example helps show that there are times when the LCFS will drive biofuels pricing in California, and other times when low carbon

² California Air Resources Board Staff, *Working Draft of the Low Carbon Fuel Standard 2011 Review Report*, Nov. 2011.

fuels markets will be driven by other market factors such as gasoline prices or other regulatory programs, such as the federal RFS.

Like the initial assessment, CARB's long-term economic assessment should clarify the economic benefits and challenges that come with transitioning towards lower carbon fuels. However, BIO recommends that CARB go beyond the original scope and include in this assessment specific economic mechanisms by which it anticipates that carbon premiums will shape the low carbon fuels markets. A clear articulation of this would help producers and investors understand how the LCFS supports competitive/premium pricing of low CI biofuels in California.

The draft economic assessment chapter does give examples explaining how the price of one fuel can be derived from another based upon their relative CI scores. However, those ratios are only important if that fuel is the marginal, price-setting low carbon fuel in the market. If CARB could indicate with various compliance scenarios what it believes the marginal price setting gallons would be for compliance purposes, the analysis would do more to clarify the implicit carbon premiums that specific fuels might expect under each compliance scenario.

As the draft chapter points out, the economic impacts of the LCFS will change as a result of significant changes to federal incentives and tariffs for advanced biofuels. These changes to the market only draw long term price stability into question. For this reason, clear price premium signals from the LCFS are increasingly critical to continue to encourage investment in low CI advanced and cellulosic biofuels.

Alternative Compliance Mechanism

BIO is very supportive of the establishment of an Alternative Compliance Mechanism (ACM) within the LCFS program. BIO would like to highlight to CARB some key elements within the cellulosic waiver provisions of the Federal Renewable Fuel Standard (RFS) that make it particularly effective at managing delays in the deployment of new low carbon fuel technologies. Through the cellulosic waiver credit (CWC), the RFS is able to provide continued commitment to investment in low carbon fuels, while simultaneously providing viable pathways to compliance for obligated parties.

First, the EPA has decided to maintain the annual renewable volume obligations (RVOs) as written under the RFS law. The fact that obligated parties must still comply with their RVOs sends an essential signal to industry and its investors that if they can produce advanced and cellulosic biofuels, the RFS will ensure a well defined level of price support, assuring demand for cellulosic fuels produced. BIO believes that any reduction in the ten percent targets will significantly undermine confidence in the program. An effective ACM should clarify the price signal and strengthen the incentive for investment in low carbon fuels. An ACM that reduces the targets would do just the opposite.

Second, EPA's CWC mechanism gives obligated parties a valid mechanism to comply with their RVOs and to achieve the mandated volumes even if adequate volumes of cellulosic biofuels are not yet available on the market. Obligated parties are not placed in an untenable situation with no pathway to compliance.

The CWC is calculated under a clear, transparent statutory formula and EPA announces every November the CWC price for the following compliance year, which in turn provides market certainty. Importantly, because the price of the CWC will be announced prior to the compliance year, biofuel producers, investors, and obligated parties can calculate the price point cellulosic biofuels will have to meet to be competitive. BIO has authored a white-paper that explains how we believe the RFS CWC defines a reliable price support for investors in cellulosic low carbon fuels. We have attached a copy of that paper to these comments as a reference to CARB, entitled Appendix C. As discussed above, the ACM under the RFS provides a very good model. BIO stands ready to assist CARB to develop early thoughts on this topic. We are aware that a white paper is currently being drafted on potential ACMs under the LCFS. We look forward to engaging with, and being a resource for CARB as it considers whether and in what form such an ACM should exist.

Low Carbon Intensity Biofuel Volumes in California under LCFS

In the draft economic assessment chapter, CARB asserts that “California, through the LCFS, will attract some higher volume and percentage of lower CI alternative fuels than would be its “proportional share” of national volumes. BIO believes that once the premium has been established, that California will attract a substantial share of national volumes of low carbon biofuels.

LCFS Credit Market

BIO agrees with the ARB staff and Advisory Panel members that the goal of the LCFS credit market should be the establishment of a reliable, transparent and sustainable compliance market. BIO’s comments to this Review Report Chapter are organized in accordance with this goal:

Reliability

Unique identifiers. BIO agrees with the Report that unique identifiers are a critical element of a functioning credit market.

Automated system. BIO agrees that an automated system is an important tool for ensuring reliability, as it minimizes human error; ensures transaction accuracy and protection of trades; and improves data collection, making reporting reliable for both public transparency as well as ARB monitoring.

Third party system. BIO believes that the use of a third-party system in the near term is feasible and desirable for ARB, rather than starting with a manual system. Such a third-party system would build on private experience to optimize reliability and would likely allow quicker implementation than the planned L-CIS, while allowing ARB to maintain its focus on setting of standard and protocol. As the Report laid out, similar mechanisms for compliance credit trading exist and there are several specialist firms that could provide this resource to ARB. This is clearly more in-line with Option 2 on pages 153, rather than Option 3 recommended in the proposed amendments. BIO also supports proposals that both establish a third party system and allow expanded market participation.

Zero tolerance for fraud. BIO agrees that a foundational principle of a functioning market is fair transactions. As mentioned above, the use of unique IDs, automated third-party systems, as well as measures to increase transparency discussed below, should help limit the potential for fraud. As the Report proposes, ARB could also conduct routine auditing, perhaps on a quarterly basis. Such auditing is an appropriate function for ARB as a regulatory agency, and would be facilitated by the use of a third-party system as recommended above.

Transparency

Reporting. BIO believes ARB’s list of information for public dissemination should include breakdowns by feedstock/fuel type, since such information could provide useful market signals for investors in low carbon fuels. In addition, BIO believes the planned quarterly reporting may not provide frequent enough market information to all participants. More regular reporting of credit prices and trends, credit sales/traded volumes and feedstock/fuel type should be considered, along with adding liquidity. Near-real-time reporting is also made possible with the automated systems discussed above.

Accessibility. More market participants increases market competition and liquidity, reducing market fragmentation and increasing pricing transparency. Therefore, BIO recommends making the credit markets accessible to all “willing participants.”

Sustainability

As is true for any market, the long-term sustainability of a credit system requires the transparent participation of many buyers and sellers, with “safety valves” that ensure long-term compliance. BIO believes including liquidity and alternative compliance mechanisms in the credit system will increase its sustainability.

Liquidity. A long-term sustainable market needs many buyers and sellers who ensure transparency and can offset potential hoarding behavior by obligated parties. BIO believes inclusion of certain controls as are typical in other exchanges, such as holding limits as pointed out in the draft, should be required of all participants in the credit system. BIO furthermore believes the inclusion of all willing participants in the credit market will also increase competition which will lower the long-term cost of compliance for obligated parties.

Alternative Compliance Mechanisms. As the Report rightly points out, the role of the credit market is to facilitate the purchase, sale and retirement of actual GHG emission reductions, while also supporting efficient deployment of capital to develop and deploy the most viable and least cost low-carbon fuel options. ARB should consider the inclusion of alternative compliance mechanisms that increase the availability of compliance options for obligated parties while also signaling a market value for compliance for low carbon fuel developers. Such mechanisms should lower uncertainty for obligated parties while also lowering the political and financial risks to developers of low carbon fuel developers by establishing a market value for compliance.

Conclusion

Thank you for the opportunity to submit these comments. BIO and its members look forward to continued dialogue with CARB staff as they work to review and update the LCFS. Please do not hesitate to contact BIO for any additional data or information that may help to further the success of a low carbon future in California.