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Via electronic submittal:
https://www.arb.ca.gov/lispub/comm/bcsubform.php?listname=lcfs18&comm_period=A

Re: GlassPoint Solar Comments on LCFS 45-day Package

GlassPoint Solar, Inc. (GlassPoint) is pleased to submit these comments on the March 6, 2018 45-day Regulatory Package for proposed amendment to the Low Carbon Fuel Standard (LCFS). We support CARB's continuing efforts to improve the LCFS program in general, and the Innovative Crude provisions specifically.

GlassPoint is a California company that develops, manufactures and finances solar steam generators for industrial processes including thermal enhanced oil recovery. Our renewable energy technology has proven reliable, safe, and economical in field operations in California and the Middle East.

We appreciate CARB's treatment of innovative crude production methods, and its recognition of the value of reducing emissions associated with crude oil extraction. We believe that the innovative crude provisions are appropriate given the program's fundamental focus on fuel life cycle emissions, and provide a price signal for projects which will deliver economic growth in California while reducing both criteria pollutants and GHG emissions.

The proposed regulatory package contains significant amendments to the LCFS program. The deployment and value of GlassPoint's technology in California critically depends on the stability of the LCFS; major changes to the program present unique challenges for solar steam technology. We would like to underscore the necessity of long-term stability of the program for investments to be made in emissions-reducing projects. We look forward over the next decade and beyond to a steady-state implementation of the program.

GlassPoint specifically supports the proposed revision to LCFS credit calculation for solar steam under the Innovative Crude provisions, including:

- The additional bins for higher steam quality; and
- Updated emissions values using OPGEE v2.0.

The inclusion of the additional bins will more accurately track the enthalpy and emissions per barrel displaced for specific California operations. GlassPoint believes the proposed values correspond to avoided emissions under current industry practices except for the 95% Steam

Quality bin. To the end of accurately modeling avoided emissions, GlassPoint requests the coefficient associated with 95% Steam Quality be revised prior to the finalization of the rule.

We also appreciate the breadth and depth of work which has gone into the OPGEE assessment tool to accurate capture the energy footprint from the production, processing, and transport of crude petroleum, including the addition of solar steam to the model.

GlassPoint believes the administrative aspects of this program as are important as the technical issues discussed above.

In addition to the credit calculation enhancements, GlassPoint strongly supports the concept of "allowing third-party co-applicants (e.g. solar steam or solar electricity providers) to opt-in and receive credit upon written agreement with crude producer". As we have discussed numerous times, this simple administrative opportunity will have significant value in the commercial marketplace, particularly for projects using third-party finance.

Some of the proposed new administrative requirements are of concern to GlassPoint. We request further review prior to the finalization of the regulation. The issues are listed below for reference. They are critical issues that GlassPoint wishes to discuss further with staff after the April 27, 2018 Board Meeting.

Section 95487(b) create new obligations to disclose the terms of a credit sale agreement that has recurring or deferred credit transfers as part of the agreement. These obligations do not apply equally to different fuels and compliance approaches, they may require an onerous level of disclosure of commercially sensitive information, and they may pose obstacles to bringing credit-generating projects through investment to operation. Subparagraph (b)(1)(F) allowing for the Executive Officer to pre-emptively cancel pending transactions is particularly concerning.

GlassPoint also questions the need for such short reporting timelines of five (5) calendar days or three (3) business days. Multiple persons and entities will often be required to sign off jointly on reports, and such timelines appear infeasible. Why would such a timeline be necessary and how would it be beneficial?

The new provision 95489(c)(1)(G) is overly broad and should be limited to "greenhouse gas related environmental attributes".

For oil fields with two separate steam outlets, Section 95489(c)(4)(E) will need to be adjusted to account for the circumstance where only one component of the field is connected to the solar steam.

Section 95500(d) is unnecessary for in-state oil fields. The crude volume does not affect carbon reductions in any manner (crude volumes appear in both the numerator and denominator of the innovative crude calculations), and for in-state producers showing that the oil is sold to a California refiner should be enough.

The stability of the credit generating stream for a solar steam project is a critical requirement for project investors. GlassPoint requests that the regulations include a provision that when a project is approved, its LCFS credit values per barrel of steam or per kWh of electricity are fixed for the project life.

The use of renewable energy in the production of liquid fuels can reduce their CI, contributing to lower costs and more certain compliance with the program. We believe that the broadest use of renewable energy in liquid fuel production is beneficial to the program. This is of course true for biofuels as well as petroleum fuels.

Solar steam as a renewable process energy input for biofuel facilities can potentially result in lower CIs, for ethanols as well as other fuels. GlassPoint is concerned that Section 95488.8(h) as drafted excludes solar steam as a potential input, and would like to see this updated.

We also request that CARB consider eliminating another obstacle to cost-effective deployment of renewable energy by biofuel producers. Wind electricity, solar steam, and solar electricity production varies annually and is weather dependent. As a result, fuel production operations which use renewable power and steam will likely use varying amounts of total annual fossil energy inputs to back up those variable renewable inputs. For petroleum production using the Innovative Crude mechanism, the program is self-adjusting for this annual variation, as the number of LCFS credits generated is directly proportional to the amount of steam and power produced with renewable resources. This isn't the case with biofuel facility pathway certifications. Biofuel plants are assumed to have a fixed set of inputs such that a fixed CI value can always be delivered.

GlassPoint recommends the LCFS program address this issue for biofuel facility pathways. With the variation of solar and wind, there needs to be a way to certify a pathway without being ultra-conservative in the expected renewable energy fraction and CI score.

Under the currently proposed rules, in any given reporting cycle, in a year of higher wind or solar output resulting in a CI lower than the facility's pathway, there is no benefit to the producer. But on the other side, in a year of lower solar or wind output, if an entity is slightly over their certified CI score there are enforcement implications. Staff's recommendation for facilities to avoid any possibility of not achieving their CI score is to build in "head room". The "head room" approach doesn't work here, as the amount of potential annual variation (up to 30% depending on location and technology) requires such conservatism as to prevent investments in renewable technology. GlassPoint recommends that this matter be addressed so that biofuel producers can make cost-effective investments in renewable energy for their production facilities.

GlassPoint strongly supports CARB's work to improve the program. Thank you for the opportunity to provide these comments, and we look forward to continued discussions.

Sincerely,

/s/

John O'Donnell
Vice President, Business Development

cc: Jim Duffy