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11.13.08

Via Email: czhangti@arb.ca.gov

Christina Zhang-Tillman
California Air Resources Board
1101 I Street
Sacramento, CA

Subject: Comments on Draft LCSF Regulation

Dear Christina:

Thank you for the opportunity to submit comments on the draft proposed LCSF regulations for which comments are requested as of today's date. Cambrian Energy has been involved in landfill gas to vehicle fuel activities for over 25 years. One of our first projects involved a demonstration of landfill gas to CNG at the Penrose landfill in California. This system fueled CNG vehicles in the Race of Champions. Our partner at the time was Pacific Energy who put the City of Livermore and the City of Stockton biogas to CNG fueling stations in at their respective waste water treatment plants. Pacific Energy's subsidiary Dual Fuel Systems provided over 40,000 CNG kits to Cities and Counties and Private Fleets. We are currently involved in the McCommas Bluff landfill where we are in the process of transporting the processed gas to California for power and vehicular utilization. We would like to replicate the City of Dallas McCommas Bluff landfill application at many other sites in California.

With respect to landfill gas project such as the one at the Penrose Landfill and the other bio gas projects , I would like to emphasize the following key points:

- Landfill gas or "biogas" will be flared and "wasted" if something is not done with it to use it beneficially. Hence, making a fuel product out of it displaces a fossil fuel and effectively eliminates the carbon emissions from the fossil fuel that was not burned.
- If CARB views biogas no differently than pipeline natural gas, industry will be effectively incentivized to burn fossil natural gas since it does not require significant clean-up and costs that biogas requires. Biogas will continue to be flared and, although considered to be a "biogenic" emission source, would not be used to

displace fossil fuel carbon emissions. Biogas and fuels from wastes *must* be considered by CARB to be totally biogenic and “carbon neutral”.

- The LCFS was established (at least initially) based on how much fossil carbon the conventional fuel processors (a.k.a. petroleum refiners) put into the supply chain. In the case of the Penrose Landfill LFG to LNG project cited above and similar projects, none of the project participants are traditional “petroleum refiners”. Thus, CARB must establish methodologies so that fuels that don’t necessarily pass through existing liquid fuel channels are properly accounted for in the standards and LCFS “credits” can be efficiently generated and transferred to those traditional fuel suppliers who need these credits to meet their LCFS compliance schedule.

In addition to our prior experience in the Penrose LFG to LNG project, Cambrian is currently evaluating the feasibility of a wide variety of other VLCF producing technologies for potential application in California and throughout the country. This includes anaerobic digestion of biomass waste, gasification of biomass waste, and cellulosic ethanol production from biomass waste. The LCFS being developed by the California Air Resource Board (CARB) could be a primary driver to bring these technologies to market in California – sooner rather than later.

Biogenic Emissions of CO2

We are concerned about the lack of distinction in the LCFS between anthropogenic and biogenic emissions of CO2. For example, we believe that CO2 emissions from fuels derived from the biogenic portion of the waste stream should be considered “carbon neutral”. That is, the CO2 emissions from the combustion of these “biogenic fuels” would be considered as part of the near-term carbon cycle. Emissions of CO2 from purely biogenic sources should be treated completely differently from CO2 emissions from anthropogenic sources – such as fossil fuels.

Under international greenhouse gas accounting methods developed by the Intergovernmental Panel on Climate Change (IPCC), biogenic carbon is part of the natural carbon balance and it will not add to atmosphere concentrations of CO2. Most international protocols use an emission factor of zero for landfill gas, wood waste, food waste and other biomass waste fuels in which the carbon is *entirely* biogenic.

That being said, we agree that fossil fuel sources of energy used to *produce* or *transport* the bio-fuel, as well as *land use carbon intensity* implications of energy crops, need to be included in calculating the overall carbon intensity of the fuel -- as you have done and are doing. However, waste derived fuels do not involve any land use carbon intensity considerations because the feedstock is a discarded *waste*. The molecule of CH4 that is burned as a fuel is totally of biogenic waste material origin. Further, the waste-derived fuel production facility can use waste-derived energy (e.g., landfill gas) to refine and produce the fuel. Likewise, biogenic waste fuel producing facilities can be located in

urban areas close to the fueling operations and/or use bio-fueled vehicles. For these reasons, we believe that waste derived biomass fuels can be very nearly carbon neutral or near carbon neutral.

If there are collateral fossil fuel emissions associated with the production and transport of the biogenic fuel, as well as land use carbon intensity implications of energy crops (but not for waste derived bio-fuels), the GREET model accounting tool could be easily add these emission in separately to determine the overall carbon intensity of the biogenically produced fuel. The base biogenically derived fuel molecule should remain “biogenic”.

Toward this end we strongly recommend that the LCFS include a definition for biogenic fuels – at least those derived from waste biomass – and a clear statement indicating that CO2 emissions from the combustion of these waste-derived fuels are considered to be biogenic and “carbon neutral”.

Phase-In of the Low Carbon Fuel Standard

Cambrian is concerned about the proposed phase-in of the LCSF. Although the draft proposed regulations call for the required 10 percent reduction in carbon intensity by the year 2020, the draft proposed regulations call for relatively little carbon intensity reduction in early years as compared to much greater decreases in carbon intensity in California fuels in later years – particularly after 2015. This creates a disincentive for early development of Very Low Carbon Fuels (VLCFs) – such as those derived from waste biomass. California fuel providers will likely be able to meet the necessary LCSF standards until 2015 by using relatively low cost strategies that do not involve the development of VLCFs. We are concerned that the development of VLCFs will be severely curtailed until after 2015 by the compliance schedule in the regulations as currently proposed.

The ability to bank LCFS credits will be critical to mitigating the impact of delayed reductions in carbon intensity levels of California fuels until after 2015. We strongly support the ability to bank LCFS credits that may be generated in early years and then market them in later years when demand may be greater. There should not be any capping of banking of LCSF credits by producers of VLCFs in early years. *Producers of VLCFs would be further disincentivized if the ability to bank credits were to be in any limited during early years.*

In addition, we recommend that CARB explore ways to further incentivize the production of VLCFs in early years – perhaps by granting additional incentives for the purchase of VLCF credits in early years. Various ways of doing this include:

- Employ a straight-line phase-in of LCFS reductions between 2010 and 2020 – rather than the currently proposed curve will limited reductions during early years and greater reductions during later years.

- Requiring a percentage of all LCFS reductions in any given year during the phase-in of the rule to be made up by the production of VLCFs. This incentive could decline after 2010 and disappear after the year 2015.
- Give additional incentive credits to fuel producers whose portfolio is made up of VLCFs during early years.

Cambrian encourages the CARB to consider ways in which the final LCFS rule might be structured to incentivize the early deployment of VLCFs. Failure to provide for such incentives could effectively delay the deployment of VLCFs until after 2015 – or even later.

Reporting Requirements and Regulated Parties

Cambrian is also concerned about the current requirement in the draft proposed regulations that all producers of fuel must become a fully regulated party and subject to the full compliance provisions of the regulations. This is true regardless of whether the producer is a large traditional producer of petroleum based fuels or a small producer of only VLCFs derived from waste biomass. As currently proposed, all participants small or large, traditional or VLCF producers must all be subject to the same compliance provisions.

As an alternative, Cambrian suggests that streamlined and simplified compliance provisions be developed for fuel producers that *only* produce fuels that are less than the required carbon intensity for any give year. In this fashion, producers of only VLCFs or low carbon intensity fuels would be further incentivized with lower compliance and reporting costs.

Please contact me if you have any questions regarding the information provided in this letter or wish to discuss these matters further.

Sincerely,



Tudor D. Williams
Partner