



April 17, 2009

Ms. Manisha Singh
Lead Policy and Regulatory WG
California Air Resources Board
1001 I Street
Sacramento, CA 95812

Via e-mail: mansingh@arb.ca.gov

Re: Comments on the Final Draft of the Low Carbon Fuel Standard Regulation.

Dear Ms. Singh:

Clean Energy would like to thank the California Air Resources Board (CARB) staff for the opportunity to comment on the Final Draft of the proposed Low Carbon Fuel Standard (LCFS). We would like to acknowledge the hard work that staff has put forward in developing the Final Draft of this LCFS regulation as we believe that it will encourage the development and implementation of low carbon fuels within the next decade. We do believe that the Final Draft would benefit from several key changes that would better reflect the performance of the Natural Gas Vehicle Industry and its willingness to innovate to help CARB and the State of California achieve its 2020 goals and beyond. Please accept our final comments for staff and Board consideration.

§95480 (Opt-in Provisions): Liquefied Natural Gas and Natural Gas Blend Pathways

While Clean Energy is very encouraged that the Final LCFS regulation proposed for adoption by the Board continues to identify compressed natural gas (CNG) from domestic sources, biomethane and hydrogen as “compliant” fuels that meet the LCFS’ 2020 goal of a ten percent reduction of carbon intensity and can “opt-in” under §95480, it is not clear why the following additional pathways are not also listed:

1. Liquefied natural gas (LNG) from domestic sources
2. CNG-biomethane or LNG-biomethane blends
3. CNG-hydrogen blends

It stands to reason that if “CNG from domestic sources” is compliant with the LCFS, “LNG from domestic sources” should also be “compliant” under the Final LCFS regulation and be allowed to opt-in under §95480. Clean Energy operates several LNG production facilities in the US, including our “Clean Energy California” plant located in Boron, California. Clean Energy California has the capacity to produce 160,000 gasoline gallon equivalent (gge) units of LNG per day and has the ability to expand its production to 240,000 gge/day using domestic natural gas as its sole fuel source. Specifically, our California plant processes natural gas that is delivered via the Kern pipeline and the source of natural gas from this

pipeline is the Colorado Rockies. Furthermore, we believe with the continued development of natural gas from shale in the East, Colorado Rocky natural gas will be diverted almost exclusively to the West, extending the domestic supply substantially to our LNG production facility.



Given that the production of domestic-based LNG for transportation fuel requires liquefaction (rather than compression) and truck delivery to a fueling destination, it does not appear that this variation in process should significantly increase the carbon impact of LNG when compared to domestically-based CNG on a “well-to-wheel” basis. We therefore urge the Board and CARB staff to classify “LNG from domestic sources” on the “compliant fuel” list and provide §95480 status upon rule adoption.

We do understand that CARB staff has been making every effort to finalize the LNG pathway analysis and we are very appreciative of this effort. However, we are very concerned that this important fuel option will be delayed or mired down in an uncharted approval process that lacks definition under the Final LCFS regulation proposed for Board consideration. Timing is critical as the compliant status of domestically-based LNG could help deploy a significant number of LNG trucks at the Ports of Los Angeles and Long Beach. To date, the Port of Long Beach staff has seemingly misinterpreted CARB staff’s LNG pathway analysis by making the assumption that LCFS diesel, a fuel that does not exist, marginalizes the greenhouse gas benefits of LNG fuel. We therefore ask CARB staff to add “LNG from domestic sources” under §95480 and to clarify CARB’s intent of applying a “LCFS diesel” comparison in the LNG pathway analysis. To date, this comparison has been used by those who either do not understand that the LCFS diesel referenced is a hypothetical or misuse the comparison as a reason to maintain the status quo over implementing alternative fuel truck programs that would increase the use of widely available low carbon fuels.

In addition to listing “LNG from domestic sources” as a compliant pathway, it would also be beneficial to both our Industry and CARB if the proposed Final LCFS regulation included blends of fuels, particularly if the fuels involved are already deemed compliant. We would ask that CARB staff include and the Board incorporate the following pathways upon rule adoption: LNG-biomethane blends, CNG-biomethane blends, and CNG-hydrogen blends. Clean Energy views the blending of very low carbon fuels with low carbon fuels as a critical strategy, not only to provide significant volumes of fuel that exceeds CARB’s 2020 goals, but also as a way to further incentivize the development and market penetration of very low carbon fuels like hydrogen and biomethane.

To sum up, Clean Energy is asking for the following action items:

1. Include “LNG from domestic sources” and the blending of low carbon fuels with very low carbon fuels (i.e., CNG-biomethane, LNG-biomethane, and CNG-hydrogen blends) under the list of fuels that enjoy §95480 status upon final rule adoption.
2. Finalize the LNG pathway analysis promised and include domestic fuel scenarios that are reflective of the current LNG market for transportation; and,
3. Clarify to stakeholders that the use of a LCFS diesel fuel comparison in CARB’s Draft LNG pathway analysis is only a projection and not a fuel that is actually available on the market today. Further, with the potential to blend very low carbon fuels with LNG, CARB should note that LNG as a fuel has the potential to further reduce its carbon intensity even in the near term.

§95485: Energy Economy Ratio (EER) for Natural Gas Heavy-Duty Engines.



Clean Energy has provided previous comments that challenge CARB's modification of the EER value for "Compressed or Liquefied Natural Gas Used in a Heavy-Duty Spark Ignited or Compression Ignition Engine" in the previous LCFS draft. To date, our comments have yet to be addressed by staff despite the fact that this modification of the EER value fails to capture the actual performance of a compression ignition natural gas engine. CARB's EER value for this category is based exclusively on a natural gas spark-ignited engine. Part of the explanation from CARB staff as to why the EER value reflected the spark-ignited engine was due to staff's uncertainty as to whether or not the manufacturer, Westport Innovations, had plans to make the ISX "2010 compliant" next year. In a recent meeting with CARB staff, Westport indicated that the company does plan to deliver a "2010 compliant" natural gas ISX compression engine in 2010. Further, Westport reported that the ISX natural gas engine is based on the diesel ISX platform that also plans to be "2010 compliant" in 2010. Given that natural gas engines have historically been significantly cleaner on criteria air pollutants than their diesel counterparts, it is reasonable to assume that the natural gas version of the ISX will maintain its clean air advantage over diesel and be on par with diesel for efficiency.

Finally, we recently received the data that CARB used to evaluate and determine the "Compressed or Liquefied Natural Gas Used in a Heavy-Duty Spark Ignited or Compression Ignition Engine" EER values, the data reflects that the spark-ignited engines do suffer a 10% penalty when compared comparable diesel engines but the compression ignition engine was on par and at times performed better than the diesel engines. During the last two workshops covering the LCFS, CARB staff's response to our question of the EER for this vehicle category always resulted in CARB asking our Industry for better data. However, looking at CARB's own data to determine the EER, it is clear that CARB should either create two EER values for two very different engine strategies or blend the two EER values if the proposed LCFS regulation disallows the use of two EER values. Since the category claims to represent both engine strategies, a blend seems most appropriate if one EER value is used. Unfortunately, blending spark-ignited and compression-ignition technologies will penalize the engine strategies that are more efficient, but less so than CARB current proposal to incorrectly tie the EER value to spark-ignited engines exclusively.

To sum up, Clean Energy is asking CARB staff and the Board to direct the staff to:

1. Assign a separate EER value to spark-ignited engines and a separate EER value to compression ignition engines that is reflective of each engine's performance; or,
2. Assign a blended EER value that reflects both spark-ignited engine and compression ignition engine performance (based on the data) to more accurately reflect the "Compressed or Liquefied Natural Gas Used in a Heavy-Duty Spark Ignited or Compression Ignition Engine" EER category.

§95425 – Credit Trading.

Clean Energy is concerned that §95425 as written limits the purchase, sale, and trading of LCFS credits to regulated parties or a third party acting on behalf of a regulated entity. Clean Energy has made prior comments on this issue and feels that it is in direct conflict with a competing proposal by CARB staff that LCFS credits may be sold to the broader AB 32 Cap and Trade program. It is therefore unclear if CARB's reluctance to allow for credits to be sold to non-regulated parties under §95425 is out of concern for refiners who may fail to generate the necessary carbon credits to comply with the LCFS or for another unforeseen reason by



Clean Energy. Clean Energy and the Low Carbon Fuel Industry holds another fear that the refiners will resist purchasing our credits at all and will hold us hostage, even drive down the price of the credits by holding out, as the last thing a refiner would want to do in a market they largely monopolize is to provide capital to their competition.

That said, Clean Energy believes that the current language under §95425 could stifle the development of a proper trading market for LCFS credits. In a large-scale market-based program where the LCFS market cannot import but export carbon credits, Clean Energy would like to see third party carbon brokers able to “make a market” for these credits. This type of market making activity tends to increase the liquidity of these credits, stimulate firms to generate these types of credits, and improve price transparency. These activities also tend to make it easier for more companies to meet their compliance obligations under the new LCFS.

Second, we strongly urge CARB staff and its Board to eliminate the ability for a regulated party to carry over any deficit to the following year if carbon credits are readily available for sale on the open market. Regulated parties should not be allowed to be out of compliance with the rule for any given year if carbon credits are available for purchase. The final draft regulation should only allow a shortfall of compliance (up to 10 percent or less with the ability to settle this debt in the following year) to a regulated party if the open market is barren of carbon credits for sale. No exceptions should be made on this point.

To sum up, Clean Energy asks that:

1. §95425 must be modified to allow for the sale of carbon credits to non-regulated entities under the larger AB 32 Cap and Trade program and other cap and trade programs throughout the country and to enable third parties that are not regulated parties to purchase, sell or trade LCFS carbon credits; and,
2. Modify the ability for any regulated party to carry over any carbon credit compliance shortfall in any given year if carbon credits are readily available on the market for sale.

§95481: Definitions for Biogas.

Clean Energy would like to see the definition of “biogas” tightened to ensure that it included biomethane from municipal sanitary waste. To date, CARB has failed to make these changes to the definition and it is unclear as to why. Clean Energy recommends the following definition:

Biogas means natural gas that that meets the requirements of 13 CCR §2292.5 and is produced from the breakdown of organic material in the absence of oxygen. Biogas is produced in processes including, but not limited to, anaerobic digestion, anaerobic decomposition, and thermo-chemical gasification. These processes are applied to biodegradable biomass materials such as manure, sewage, municipal solid waste, green waste, and energy crops to produce biogas, including landfill gas and digester gas.

To sum up, Clean Energy asks that:

1. The definition of “Biogas” be modified to incorporate municipal solid waste.

Concluding Remarks:



Clean Energy would like to thank CARB staff for developing a very comprehensive and thoughtful regulation that will result in low carbon fuel penetration in California's markets within the next decade. Clean Energy knows that CARB staff has put in a lot of hard work to develop this regulation and have been very receptive to many concepts that could improve the mechanics of the regulation. Although we are still disappointed that the LCFS compliance curves are not linear between years 2010 to 2020, we support the rule as a company and will make every effort to innovate our industry in order to provide critical support to staff to achieve 2030, 2040 and 2050 low carbon fuel goals in California's transportation fuels.

Again, we urge CARB staff or its Board to direct CARB staff to: (1) include "LNG from domestic sources" and biomethane- and hydrogen-natural gas blends under §95480 (opt-in) upon adoption; (2) complete the LNG pathway analysis with realistic domestic LNG pathways as soon as feasible; (3) clarify to public stakeholders that domestic LNG does have significant GHG benefits and that LCFS diesel is not ready for market; (4) establish two EER values for spark-ignited engines and compression ignition engines respectively; (5) allow the export of LCFS carbon credits for sale or purchase as directed under the proposed LCFS regulation to non-regulated parties within the broader AB 32 Cap and Trade Program; (6) do not allow regulated parties to carryover any shortfall of compliance until all the credits on the open market are purchased; and, (7) modify the definition for biogas so that it includes municipal solid wastes as a source for biogas.

With the adoption of the above suggested changes, we believe the Natural Gas Vehicle Industry will be well suited to support CARB and California's goal to achieve the LCFS 2020 goals and beyond. Thank you for your time and careful consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Todd R. Campbell", written over a horizontal line.

Todd R. Campbell
Director of Public Policy