



June 19, 2015

Richard Corey
Executive Officer
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Re: Comments on Proposed 15-Day Regulation Order for the Low-Carbon Fuel Standard

Dear Executive Officer Corey:

The California Natural Gas Vehicle Coalition (CNGVC), NGVAmerica (NGVA), and the Coalition for Renewable Natural Gas (RNGC)¹ are pleased to provide these joint comments regarding ARB's proposed re-adoption of the Low Carbon Fuel Standard (LCFS) regulation. Specifically, this letter provides our detailed joint comments on ARB's "Attachment A: Proposed 15-Day Regulation Order," which was released for public comment on June 4, 2015.

Below, we present our joint, detailed comments and recommendations. We want to be clear that our three organizations continue to support ARB's proposed re-adoption of the LCFS regulation. We greatly appreciate the time and effort put forth by ARB staff over the last several months to meet with our representatives and address our specific concerns. We are pleased that ARB has made changes that corrected erroneous information and updated obsolete inputs in early drafts of the proposed CA-GREET model revision (version 2.0). We are committed to continue working closely with ARB staff, right up until the LCFS program re-adoption is anticipated at the Board's July 23, 2015 meeting.

A. Comments on Proposed LCFS Regulatory Changes

Our detailed comments regarding ARB's proposed LCFS regulatory changes are presented below, in six specific areas.

1. Provisional Pathway Process

Staff is proposing a "provisional pathway" process for facilities with less than two years of operational data. Under this new process, facilities with less than two years of operational data would generate provisional credits. Such credits could not be traded or sold unless certain conditions are met. One interpretation of the regulatory text might be that all credits generated under a provisional pathway may not be sold until the facility has completed the application process and received a fully certified "operational CI." This process could take up to two years, depending on the amount of operational data available for the facility at the time of application.

¹ For more information about our three organizations and respective memberships, please refer to the many previous formal comment letters that we uploaded over the last nine months to the ARB LCFS comments website.

In effect, this process would prevent new facilities from monetizing LCFS credits for up to two years. This would be disastrous for the development of new low carbon fuel sources for the California market. The development of facilities to produce low carbon transportation fuels typically requires significant upfront capital investment and risk. Further, the lowest carbon intensity fuels, such as renewable natural gas, are currently more expensive to produce than fossil based fuels. Revenue from credits generated under the LCFS and other programs help mitigate some of the project risk and are critical to creating feasible financial plans for the development of these facilities. Delaying revenue generation from credit sales significantly undermines the financial feasibility of such projects, thereby limiting the growth in supply of low carbon fuels. This is at odds with the intent of the LCFS program and the stated intent of the provisional pathways process to “encourage the development of innovative fuel technologies...”

We believe that a strict reading of Section 95488(d)(2) does allow applicants to sell provisional credits during the period the facility is operating under a provisional pathway. As described in the regulatory text, “The applicant may not sell credits generated under a provisionally-approved fuel pathway, or transfer the provisional fuel with obligation, **until the Executive Officer has adjusted the CI** or informed the producer that the provisional CI has been successfully corroborated by operational records covering a full two years of commercial operation” (emphasis added). Further, “At any time during those two years, the Executive Officer may revise as appropriate the plant’s actual operational CI based on those receipts.”

Based on these elements of Section 95488(d)(2), we believe that the regulation distinguishes between an “adjusted CI” and a CI that has been corroborated by two years of operational data and, that once the Executive Officer adjusts the CI of a provisional pathway (including, but not limited to, the issuance of any CI that differs from the Temporary FPC values in Table 7), all credits generated under that pathway become available for trade, sale, or transfer. Hence, once an applicant has submitted at least one quarter (three months) of receipts and reported credits generated in the LRT, the Executive Officer should issue an adjusted operational CI, enabling the full use of the provisional credits by the applicant and any future credits generated under the provisional pathway.

It should also be noted that the regulation does not define the terms, “Provisional CI”, “Operational CI”, or “Provisional Credits.” For clarity, we believe that the following are reasonable interpretations of each term.

Provisional CI – A CI issued to a provisionally approved pathway. This includes CIs based on “default” values in Table 7 and Operational CIs.

Operational CI – A CI that has been issued or adjusted by the Executive Officer based on operational data submitted by the applicant. An Operational CI can apply to a Provisional Pathway or a fully approved pathway. Operational CIs for provisional pathways may be adjusted multiple times as the Executive Officer receives additional quarters of operational data.

Provisional Credits – Credits generated under a Provisional Pathway. Provisional Credits generated under an Operational CI can be traded, sold, or transferred.

Because these elements of the provisional pathway process are potentially confusing, we respectfully request that Staff clarify the intent of Section 95488(d)(2) and confirm that the Executive officer will timely adjust the

CI of the provisional pathway based on the receipt of at least one quarter of operational data. Further, we request that Staff clarify that such an adjustment would allow the applicant to trade, sell, or retire these provisional credits, or transfer the underlying fuel with obligation. Such a clarification is crucial to avoid harming the development of new low carbon fuel supplies and is consistent with the stated intent of the LCFS and the provisional pathway process.

If Staff do not believe our interpretation of the regulatory text is accurate, we strongly urge ARB to modify the rule to allow the monetization of Provisional Credits immediately upon issuance of a Provisional CI, and allow generation of credits from the date the application is submitted to ARB.

2. Temporary FPC Values

Table 7 of the regulation proposes temporary carbon intensities for fuels where a specific fuel pathway cannot be identified. These may also potentially be used as “default” values for facilities awaiting application approval or in the beginning stages of the Provisional Pathway process. Hence, the values in Table 7 have a material impact on the credits and deficits generated under the LCFS. Despite the importance of these values, ARB staff have not provided information regarding the underlying assumptions used to determine most of the values in Table 7 (excluding the CIs for diesel and CARBOB, which are clearly documented elsewhere). We believe that the values in Table 7 are not consistent with typical values expected for natural gas pathways providing fuel to California. In fact, values for LNG from North American natural gas, and CNG or LNG derived from landfill gas are significantly higher than the illustrative values provided by ARB staff at the April 3rd workshop at which updates to CA-GREET 2.0 were extensively discussed.

In sum, the currently proposed revisions to Table 7 further increase the CIs for natural gas pathways above values previously proposed by staff, and these increases do not appear to be explainable by documented revisions to the CA-GREET model. We believe that it is inappropriate to further increase the values in Table 7 without providing details on the assumptions underlying these changes. Consequently, we request that ARB staff not modify the values in Table 7 from the values proposed in February. At the very least, we believe that any modifications to the values in Table 7 should be clearly linked to documented changes and updates to the CA-GREET model.

3. Application Review Timeline

Section 95488(c)(5)(B) proposes to eliminate the 60-day deadline for ARB staff to review an application and notify the applicant about its completeness. However, Staff is not proposing to modify the 180-day deadline for an applicant to provide a complete application. Staff notes that this change is being proposed to eliminate “unrealistic deadlines” during times when Staff will be working to recertify hundreds of existing pathways.

This removal of the 60-day deadline may be acceptable for applications covered by an existing pathway and able to generate credits as late as December 31, 2016. However, the proposed change is not acceptable for new applications. It is crucial that ARB continue to provide timely feedback to applicants regarding the completeness of their applications and any deficiencies that must be addressed. Delays in the review process can translate directly into lost credit generation, the associated revenue, and verified carbon reductions.

Further, we note that the removal of the 60-day requirement is not limited to the 2016 timeframe. It is inappropriate to establish a regulation in which Staff have no obligation to complete a timely review of an application but where the applicant is simultaneously constrained to a fixed deadline and dependent on Staff's review of the application.

Similarly, Staff propose to remove the 15-day deadline for review and notification of completeness of a fuel transport mode as defined in Section 95488(e)(5). We have similar concerns and objections to the removal of this requirement for timely review of the fuel transport mode application as we do for the pathway application review process in Section 95488(c)(5).

We urge Staff to retain the 60-day and 15-day deadlines in Sections 95488(c)(5)(B) and 95488(e)(5), respectively, and to provide the LCFS program the necessary resources to conduct timely review of applications during the 2016 timeframe. It is critically important that industry has a process for application review that includes firm deadlines for ARB's actions.

4. Treatment of Business Confidential Information

Staff are proposing to eliminate language providing protection of credit transaction data as Business Confidential information. Section 95487(c)(1)(B) currently requires ARB to treat all data reported in Credit Transfer Forms as business confidential, with limited exceptions for reporting of aggregated data described in Section 95487(d).

Credit Transfer Forms contain a number of sensitive pieces of information including, but not limited to:

- Names and contact information of individuals at companies involved in the transaction;
- Parties to specific transactions;
- Price and number of credits involved with a specific transaction.

There is no basis for broad public disclosure of the names and contact information of private persons, particularly when they are acting simply in an administrative role for a private organization. Further, the disclosure of the parties, pricing, types of credits, and number of credits associated with a particular transaction can be damaging to the business interests of regulated parties. The disclosure of such sensitive information is not consistent with other regulatory programs including the US EPA's Renewable Fuel Standard.

It should also be noted that, while the regulation allows brokers to facilitate "blind transactions," the disclosure of data in the Credit Transfer Forms would undermine blind transactions for any transactions where the broker does not first aggregate the credits from multiple buyers or sellers.

We urge Staff to retain the Business Confidential protection language in Section 95487(c)(1)(B). Confidentiality provisions are the industry standard for commodity transactions. However, we can support providing information for the sole purpose of calculating a published index.

5. Definition of L-CNG and Bio-L-CNG

The proposed regulatory text currently defines L-CNG as “LNG that has been liquefied and transported to a dispensing station where it was then re-gasified and compressed to a pressure greater than ambient pressure.”

Similarly, Bio-L-CNG is defined as “biogas-derived biomethane which has been compressed, liquefied, re-gasified, and re-compressed into L-CNG, and has performance characteristics at least equivalent to fossil L-CNG.”

In both definitions, it is assumed that L-CNG is created by gasifying LNG and then compressing the resulting gas to pressures suitable for CNG, typically 3,600 psi. This is not an accurate description for most L-CNG and Bio-L-CNG facilities. The pumping of liquids to high pressures is much less energy intensive than the compression of gas. Most L-CNG facilities take advantage of this fact by first pumping LNG to high pressures and then re-gasifying the LNG at pressure, ultimately producing CNG without the need for a gas compression process. Such a distinction is important because it has a meaningful impact on the carbon intensity for L-CNG fuels. We note that this issue was raised in our comments submitted to ARB on December 15, 2014. Following that submission, Staff updated the CA-GREET model to reflect the typical operation of L-CNG stations.

We recommend that Staff modify the definition of L-CNG and Bio-L-CNG to be consistent with the processes modeled in CA-GREET 2.0. Specifically, by eliminating the text asserting that L-CNG and Bio-L-CNG necessarily involve “compression” or “re-compression” of natural gas at the station.

6. Retroactivity

Section 95486(a)(2) limits the generation of retroactive credits to a maximum of two quarters; the quarter in which the complete application was submitted and the quarter in which the Executive Officer approves the application. Exceptions are made for provisional credits generated during the period that the applicant is accruing two years of operational data.

While the two-quarter limit on retroactive credit generation appears reasonable, it is predicated on the assumption that the Executive Officer will approve a complete application by the end of the quarter following submission of the application. Considering that Staff acknowledge the likelihood of significant delays in application processing during 2016, and in light of the proposed elimination of the 60-day and 15-day review deadlines discussed in item 3 above, we believe that retroactivity should not be constrained by a two-quarter limit. Specifically, we propose that retroactive credit generation should apply from the quarter the applicant submits a completed application or demonstration to the quarter in which the Executive Officer approves the application or demonstration. Hence, if the approval of the application or demonstration by the Executive Officer requires more than one quarter, the applicant does not lose credits due to delays outside the applicant’s control.

This proposed change is both reasonable and important. However, we do not believe it is worth delaying the adoption of the LCFS, provided that Staff ensures the timely review of applications as noted in our comments under Item 3, above. Instead, we strongly urge Staff to consider making this change in a future update to the

LCFS, retain the 60-day and 15-day deadlines for review in the current rulemaking (or alternative reasonable timeline with a firm deadline), and ensure that the LCFS program has sufficient resources to provide timely review of applications.

B. Comments on CA-GREET Model Update

We would like to thank Staff for their efforts to address our concerns related to the draft CA-GREET 2.0 model over the last nine months. These interactions have resulted in important improvements to the model.

In the latest draft of CA-GREET, Staff incorporated estimates of Tank to Wheels (TTW) methane and nitrous oxide emissions from natural gas vehicles, based on a recent whitepaper from Argonne National Laboratory (ANL).² The whitepaper provides estimated emissions for various vehicle types and applications, including combination long haul trucks, combination short haul trucks, refuse trucks, buses, heavy duty trucks and vans, and medium duty vehicles. Staff rely on the emissions rates in the ANL report, combined with estimates of the composition of the natural gas vehicle fleet, to calculate fleet-averaged TTW emissions rates for CNG and LNG.

The emissions rates calculated by ARB staff are not insignificant. As shown in Table 1, ARB assumes that the fleet-averaged emissions of methane and nitrous oxide for CNG and LNG vehicles are 4.90-4.91 gCO₂e/MJ. This represents a 6% increase in pathway emissions for CNG and LNG from fossil sources, and potentially more than 25% of emissions from renewable natural gas pathways. However, as shown, emissions from some vehicle types are much lower than the calculated fleet average.

Table 1. Non-CO₂ GHG emissions assumptions for natural gas vehicles

Vehicle Type	Non-CO ₂ vehicle emissions
ARB CNG Fleet Average	4.90 gCO ₂ e/MJ
Light-Duty/Medium Duty	0.99 gCO ₂ e/MJ
Heavy-Duty Class 8b	2.42 gCO ₂ e/MJ
ARB LNG Fleet Average	4.91 gCO ₂ e/MJ

Both heavy-duty class 8b vehicles and light/medium duty vehicles are estimated to have much lower TTW emissions than the fleet-average. Because of such wide variation in the emissions from vehicle types, the fleet-averaged emissions are very sensitive to the assumed fleet composition. Overestimating the fraction of the fleet in higher emitting applications raises the fleet average and potentially penalizes lower emitting applications.

We raise two specific concerns here, as described below.

1. Basis for the Current Fleet Mix

Staff calculates the current mix of applications consuming CNG and LNG based on data from the US Energy Information Administration's (EIA) Alternative Fuel User Database. The latest year for available data is 2011.

² Cai, H. et al, The GREET Model Expansion for Well-to-Wheels Analysis of Heavy-Duty Vehicles, 2015

We note that the data are both out of date, and inconsistent with other industry specific data sources. As an example, we note that ARB staff estimate that transit buses consume 60% of the 55 million gallons of LNG sold in 2014. This equates to nearly 22 million GGE, or 150% more LNG for transit buses than reported by EIA. The National Transportation Database (NTDB) reports that California transit fleets consumed only 7 million gallons of LNG, or approximately 4.6 million GGE in 2011; roughly half of the fuel consumption reported by EIA. Finally, it is unclear to what extent reported LNG consumption actually reflects LNG delivered to an LCNG station.

The dominant purchasers of LNG in California for transit applications are Orange County Transportation Authority (OCTA) and Santa Monica's Big Blue Bus (BBB). These two agencies represent almost 95% of LNG purchased in 2011, according to the NTDB. Examination of a recent LNG purchase contract from OCTA reveals that the agency consumes roughly 22,000 gallons of LNG per weekday, or approximately 5.5 million LNG gallons per year.³ A city council report on the BBB LNG fuel procurement for 2010-2011 reported that BBB purchases roughly 200,000 LNG gallons per month to serve a mix of BBB vehicles as well as city vehicles and the Santa Monica Unified School District.⁴ BBB operates a mix of CNG and LNG buses, supplying the CNG buses through their LCNG station. Consequently, only a fraction of the BBB LNG purchases are actually used in transit applications. In total, the two largest purchasers of LNG for transit applications only represented less than 7.7 million LNG gallons in 2011. Again, this value is much lower than that reported by EIA.

Such disparities between EIA and other data sources make it clear that EIA is not a reliable basis upon which to develop a fleet-average emissions rates.

2. Evolving Fleet Mix

EIA's last available estimate of the population of NGVs in the US is 121,650 vehicles in 2011. Based on industry sales data, NGVA estimates that the current population of NGVs is in excess of 155,000 and growing. New deployments show growth in sales of Class 8 trucks in addition to sales in more traditional transit and refuse applications. It is clear that the mix of NGVs is changing and that it is not possible to accurately predict the future fleet mix. Further, because of the relatively small number of NGVs in the state (relative to traditional petroleum fueled vehicles), modest growth in any application could significantly alter the fleet mix.

Recommendations Regarding CA-GREET Update

Based on the two concerns described above – and the fact that the TTW emissions rates employed by ARB have non-trivial variations based on the vehicle type/application – we request that ARB allow fuel producers the option to adjust their pathway carbon intensities based on the vehicle type receiving the fuel. For example, a CNG or LNG station owner that documents the volume of fuel dispensed to Class 8b trucks would adjust their pathway CI based on non-CO₂ TTW emissions of 2.42 gCO₂e/MJ, rather than the fleet average of 4.90 or 4.91 gCO₂e/MJ.

³ Orange County Transportation Authority, Award of Liquefied Natural Gas Contract – Staff Report, 2013
http://atb.octa.net/AgendaPDFSite/10775_Staff%20Report.pdf

⁴ City of Santa Monica, LNG Fuel for the Big Blue Bus, Agenda Item 3-E, February 8, 2011.
<http://www.smgov.net/departments/council/agendas/2011/20110208/s2011020803-E.htm>

This option would help incentivize the deployment of NGVs in the lowest emitting categories by recognizing their specific emissions profiles and would require minimal changes to the data tracked in the LRT. Currently light and medium-duty natural gas consumption is tracked separately from heavy-duty natural gas fuel consumption in the LRT. Implementing the proposed recommendation would only require the separation of Class 8b fuel consumption from the remaining heavy-duty vehicle applications. Where the vehicle type cannot be determined or is not documented, the credit generator would continue to use the fleet-averaged TTW emissions rates.

Closing Comment

Our three organizations support re-adoption of the LCFS regulation. We genuinely appreciate the cooperation that ARB staff have shown in working with our industry representatives to improve the program, especially the critically important CA-GREET model. Leading up to the July 23 Board meeting, we urge you to expeditiously address the issues identified in this letter.

Thank you for the opportunity to comment. If we can provide additional information, please contact any of us.

Sincerely yours,



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