

**STATE OF CALIFORNIA  
AIR RESOURCES BOARD**

**PROPOSED AMENDMENTS TO THE LOW CARBON FUEL STANDARD REGULATION  
AND TO THE REGULATION ON COMMERCIALIZATION OF ALTERNATIVE DIESEL  
FUELS**

**GROWTH ENERGY'S RESPONSE  
TO THE "SECOND NOTICE OF PUBLIC AVAILABILITY OF MODIFIED TEXT AND  
AVAILABILITY OF ADDITIONAL DOCUMENTS AND INFORMATION," DATED AUGUST 13, 2018,  
AND AUGUST 15, 2018, ERRATA**

**AUGUST 30, 2018**

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**Comments of Growth Energy on the “Second Notice of Public Availability of Modified Text and Availability of Additional Documents and Information” Concerning the Proposed Amendments to the Low Carbon Fuel Standard Regulation and to the Regulation on Commercialization or Alternative Diesel Fuels, and Related Errata**

Growth Energy respectfully submits these comments on the August 13, 2018, Second Notice of Public Availability of Modified Text and Availability of Additional Documents and Information, and the August 15, 2018, Errata (collectively, the “Second 15-Day Notice”) related to the California Air Resources Board’s (“CARB”) proposed amendments to the Low Carbon Fuel Standard Regulation (the “LCFS”) and the proposed amendments to the Regulation on Commercialization or Alternative Diesel Fuels (the “ADF”). Collectively, the proposed amendments to the LCFS and ADF regulations are referred to in these comments as the “Proposed Amendments,” while the proposed modifications to the LCFS and the ADF regulations identified in the Second 15-Day Notice are referred to as the “Proposed Modifications.” These comments are also accompanied by expert reports prepared by (i) Thomas Darlington of Air Improvement Resource Inc., and (ii) Jim Lyons of Trinity Consultants, which are enclosed as Exhibits “A” and “B,” respectively.

*Modifications to the GREET Model.* As an initial matter, Growth Energy appreciates CARB staff’s recommended modifications to the GREET model. Among other things, CARB has clarified its treatment of haul and backhaul emissions, corrected issues concerning medium and heavy-duty truck emissions, and corrected its calculation of the nitrogen content for sugarcane ethanol.

That said, there are still several issues with the GREET model that should be modified to ensure the LCFS is based on “the best available economic and scientific information.” (Health & Saf. Code, § 38562, subd. (e).) In addition to the unresolved issues raised previously by Growth

Energy, GREET should be revised to include a distillers grains enteric fermentation credit for corn ethanol, and ensure that the credit is based on conditions in the United States (in contrast to Hünnerberg, *et al.*). (See Exhibit “A”). As we have urged in the past, CARB should also incorporate the latest indirect land use change values from the GTAP model into GREET. (*Id.*)

***Capacity Credits for Electric/Fuel Cell Infrastructure.*** In addition, Growth Energy continues to have concerns regarding the proposal to provide capacity credits for electric and fuel cell vehicle infrastructure. As demonstrated in Exhibit “B,” the alleged GHG benefits of the LCFS regulation would decrease significantly if the Proposed Modifications are adopted. Specifically, assuming the LCFS does not result in fuel shuffling, “the annual amount of GHG reductions that would not be realized by the LCFS program due to the proposed infrastructure crediting provisions would range from about 0.8 to 1.6 MMTCO<sub>2</sub>eq per year and the cumulative loss in GHG emissions from 2019 to 2030 could amount to 14.0 MMTCO<sub>2</sub>eq.” (Exhibit “B” at 1.) This result is inconsistent with AB 32 and SB 32. (See Health & Saf. Code, §§ 38560.5, subd. (c); 38562, subd. (a); 38566.)

The Proposed Modifications would also result in a substantial amount of windfall revenue to operators and owners of DC fast charge and hydrogen stations which could total \$150 to \$300 million per year. (Exhibit “B” at 1.) These benefits will in turn reduce the incentives for alternative fuel providers to sell low CI fuel in the aggregate amount of \$150 to \$300 million per year, contrary to the purpose and intent of the LCFS program.

***CARB Should Consider Alternatives to the LCFS.*** Rather than trying to convert the LCFS regulation into something it was never intended to be, CARB should look to reasonable alternatives to the LCFS that would achieve the same purposes and results, but without its significant unintended consequences. Specifically, CARB should consider the alternatives Growth Energy

raised in its April 27, 2018 and July 5, 2018 comments, which include the “WSPA Alternative” (AB 32 Cap and Trade program) and the “E15 Alternative,” as well as the proposal described in Exhibit “B” at pages 2-3, which advocates for the use of surplus funds from the point of purchase rebate program provided to EDUs for residential EV charging as a source of funding to support underutilized DC fast charging and hydrogen stations. These alternatives would each lessen the “significant and unavoidable” effects of the Proposed Amendments, and the LCFS regulation generally, (Pub. Res. Code, § 21002), and help reduce greenhouse gas emissions “to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030,” in a manner that is both technologically feasible and cost-effective. (Health & Saf. Code, § 38566.)

***Verification of Fuel Pathways.*** Growth Energy also has concerns regarding CARB’s proposal to require verification of all fuel provider pathways. This proposed process is unnecessary because it would be duplicative of the work already performed as part of the pathway approval, and would add significant expense by requiring fuel providers to retain verifiers. This is of significant concern because CARB’s proposed conflict of interest (COI) requirements are exceedingly stringent, and would dramatically limit the number of qualified third-party verifiers competent to serve as verifiers. Before considering the Proposed Amendments for adoption, CARB should survey the range of potential consultants available to serve as verifiers, and confirm the work is capable of being performed in a timely and cost-effective manner by existing competent professionals. Moreover, instead of requiring all alternative fuel producers to be subject to verification, CARB should instead impose random third-party verification for a small subset of alternative fuel producers each year (*i.e.*, 5%). Random verification would be equally effective in ensuring compliance, but without the significant expense associated with *requiring* continuing verification for all alternative fuels. (See Exhibit “B” at 6.)

Thank you again for the opportunity to participate in this rulemaking, and your anticipated consideration of the above comments.

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**EXHIBIT “A”**

Comments on CARB's Second 15-day Notice  
August 30, 2018  
Thomas Darlington, Air Improvement Resource Inc.

This document summarizes my comments on CARB's Second 15-day Notice materials.

***Indirect Land use Changes***

In its second 15-Day Modifications, CARB did not address our comments on CARB's First 15-Day Notice, submitted on behalf of Growth Energy, on utilizing a more recent version of the GTAP model. The LCFS should be modified to address each of these concerns.

***Direct Emissions of Corn Ethanol, Corn Oil, and Sugarcane Ethanol***

Distillers Grains Enteric Fermentation Credit for Corn Ethanol

In this latest version of the Proposed Modifications to the LCFS, CARB still did not include a distillers grains enteric fermentation credit for corn ethanol. CARB, however, in their Errata document listed a new reference:

Feeding high concentrations of corn-dried distillers' grains decreases methane, but increases nitrous oxide emissions from beef cattle production, *Agricultural Systems* 127 (2014): 19-27. Hünenberg, M., Little, S.M., et al., Available at:  
<https://www.sciencedirect.com/science/article/pii/S0308521X14000146?via%3Dihub>.

This reference was included presumably to counter our prior comment about reduced methane from cattle fed dried distillers grains (DDGs). As the title indicates, the article is presenting evidence that N<sub>2</sub>O emissions increase with cattle fed DDG, and that this increase in N<sub>2</sub>O emissions negates the reduced methane emissions (i.e., enteric fermentation credit). The increase is due to higher emissions of N<sub>2</sub>O from cattle manure when fed either corn DDGs or wheat DDGs. The article indicates:

Using high-fat distillers grains in the diet of feedlot cattle may decrease enteric CH<sub>4</sub> emissions, but *at high dietary levels* it increases N excretion and results in a net increase in GHG emissions (*emphasis added*).

However, in reviewing the article, it is apparent that the evidence presented is not applicable to the U.S. Specifically, the evidence is based on cattle fed with 40% DDGs, which does not reflect U.S. conditions. This is also inconsistent with the assumptions in Argonne's GREET model, which assumes a DDG dietary inclusion

rate of 22-23%, about half of the amount used in a case study described in this article.<sup>1</sup> The inclusion rate would have a direct effect on N<sub>2</sub>O emissions. Using a much lower DDG inclusion rate than 40% would result in no increase in N<sub>2</sub>O emissions from cattle fed DDGs. Thus, because the experiment conducted in this research is not applicable to the inclusion rates in the U.S., CARB should include the enteric fermentation credit in CaGREET2.0.

### ***Rail and Barge Transport***

Thank you for considering our comments concerning the removal of backhaul emissions, and clarifying that the energy intensities CARB is using are for the haul and backhaul combined.

### ***Medium and Heavy-Duty Truck Emissions***

Thank you for considering Growth Energy's prior comments concerning medium and heavy-duty truck emissions, and in particular, recognizing that the fuel economy of both vehicle classes were too low and that the fuel economy for the backhauls should be better than the haul.

### ***Sugarcane Ethanol***

Nitrogen Content of Sugarcane Straw

Thank you for considering Growth Energy's comments on the nitrogen content of sugarcane straw and increasing this value from 0.37% to 0.53%, based on the average value from several literature sources, instead of just the lowest value.

### ***Summary***

We appreciate the fact that CARB has incorporated some of our prior comments on the GREET model. However, in order to be consistent with the best available scientific data, the GREET should be further modified to incorporate all of our prior comments. In summary, the latest version of the GREET model should be modified to include the DG enteric fermentation credit for corn ethanol. In addition, as I have indicated in previous comments, CARB should revise estimates of emissions related to indirect land-use changes using the latest version of GTAP.

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<sup>1</sup> *Update of Distillers Grains Displacement Ratios for Corn Ethanol Life-Cycle Analysis*, Arora, S., Wu, M., and Wang, M., Energy Systems Division, Argonne National Laboratory, September 2008, ANL/ESD/11-1. See Table 11 of this report for dietary inclusion rates in the U.S.



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**EXHIBIT “B”**

**Comments on Second Notice of Public Availability of Modified Text  
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**Prepared by Jim Lyons, Trinity Consultants  
August 30, 2018**

**CARB’s Proposal to Provide “Capacity” Credits for Electric and Fuel Cell Vehicle Infrastructure is Contrary to the Purpose of the LCFS and Should Not Be Included**

As part of the second 15-day notice, CARB has made a number of modifications to the proposed new section of the low carbon fuel standard regulation (“LCFS”), 95486.2 to Title 17, California Code of Regulations, which is intended to provide LCFS credits to hydrogen stations and direct current (DC) fast charging stations based on the installed capacity to deliver hydrogen and electricity in addition to the LCFS credits provided for the “fuel” that is actually delivered to and used by electric (EV) and fuel-cell (FCV) vehicles. However, none of these proposed changes address the fundamental issues raised by the public and Growth Energy during comments on the first 15-day notice. Rather, Section 95486.2 continues to contemplate that LCFS credits would be provided to owners and operators of DC fast charging and hydrogen stations for not actually selling low-CI fuel, but for the theoretical sales they could have if their stations were utilized to their full capacity. The direct result of this process is a loss in the GHG reductions that would result from the proposed LCFS, and windfall revenue for the station operators.

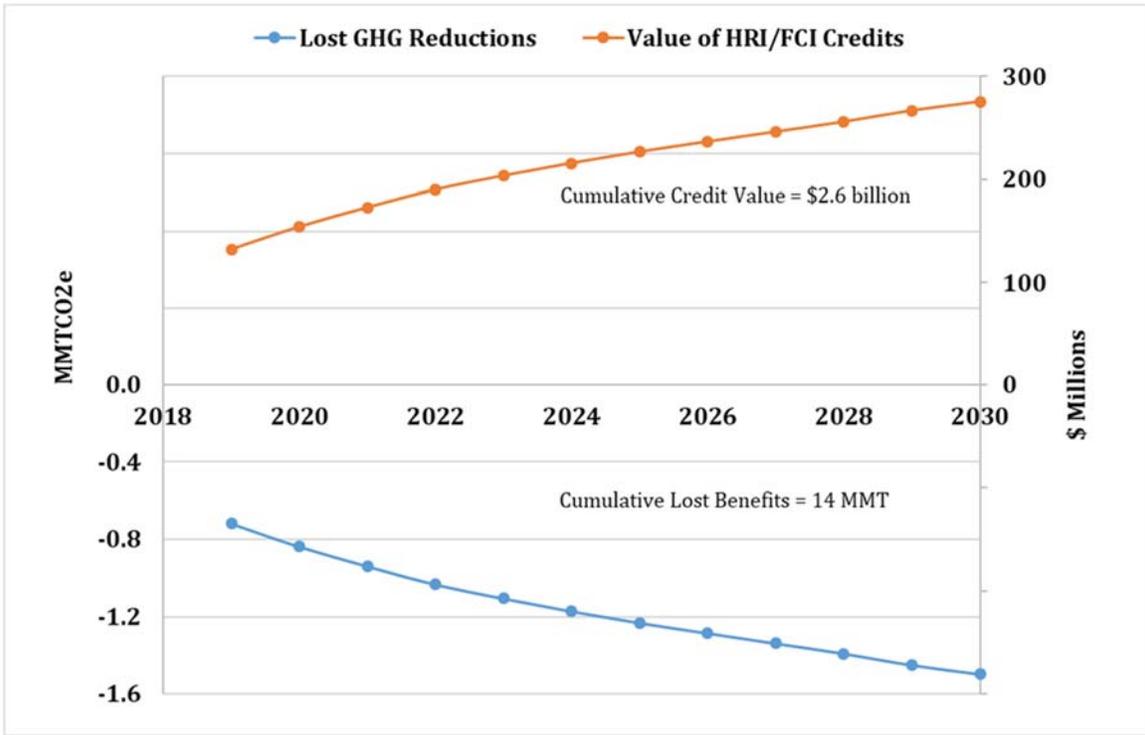
In order to put the potential magnitude of these issues into perspective, Figure 1 shows the estimated maximum amount of GHG reductions that could be lost due to the implementation of Section 95486.2 and the estimated maximum amount of windfall revenue that owners and operators of DC fast charging and hydrogen stations could realize based on the deficit values projected in the August 15, 2018 version of the Illustrative Compliance Scenario Calculator posted on CARB’s website<sup>1</sup> as configured for the “Low Demand” and “Project/LD/Low ZEV/20%/infra” cases. The data in the figure assume that 5% of total deficits each year from 2019 to 2030 are provided as infrastructure credits and that the value of each LCFS credit received is \$184 – the average LCFS credit price for Q2, 2018. As shown, the annual amount of GHG reductions that would not be realized by the LCFS program due to the proposed infrastructure crediting provisions would range from about 0.8 to 1.6 MMTCO<sub>2</sub>eq per year and the cumulative loss in GHG emissions from 2019 to 2030 could amount to 14.0 MMTCO<sub>2</sub>eq. Similarly, windfall revenue received by operators and owners of DC fast charge and hydrogen stations could amount to about \$150 to \$300 million per year with the potential cumulative value being about \$2.6 billion. Under CARB’s high fuel demand scenarios, lost GHG benefits and windfall revenues would be even greater. It should also be noted that CARB staff acknowledges in Attachment G to the 2<sup>nd</sup> 15 day notice that accounting for infrastructure credits for hydrogen and DC fast charges is one of the factors that lead to a reduction in the cumulative

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<sup>1</sup> See <https://www.arb.ca.gov/fuels/lcfs/rulemakingdocs.htm>

GHG benefits claimed for the LCFS program from 117 to 97 MMTCO<sub>2</sub>eq (a loss of 17%) compared to the current conditions baseline and from 70 to 63 MMTCO<sub>2</sub>eq (a loss of 10%) compared to the business-as-usual scenario.

**Figure 1. Potential Loss in GHG Reductions and Windfall Revenue Transferred Under CARB’s Proposed Infrastructure “Capacity” Program**



In addition to continuing to propose new Section 95486.2, CARB staff has failed to provide any meaningful analysis of the potential environmental impacts associated with the infrastructure crediting provision that were highlighted in comments submitted on the first 15-day notice or any explanation of why the new Section 95486.2 results in the potential reduction in the GHG benefits of the LCFS program.

**CARB Has a Viable Alternative to the Proposal to Provide “Capacity” Credits for Electric and Fuel Cell Vehicle Infrastructure that would Achieve the Same Result without Sacrificing GHG Reduction Benefits of the LCFS Program**

As part of the second 15-day notice CARB is proposing changes to Title 17, CCR, section 95483(c)(1)(A), which would “*require an opt-in electrical distribution utility (EDU) or its designee, generating base credits for residential EV charging to participate in a statewide point of purchase rebate program funded exclusively by LCFS credit proceeds, if such a program is established.*”

The proposed required contribution of all LCFS credits generated from residential EV charging vary depending on the type of EDU. This is shown in Table 1 below, which is

taken from the draft regulatory text published as part of the Second 15-day notice. Table 1 shows the required contribution for all electrical distribution utility (EDU) types to the point of purchase rebate program is substantially less than 100%.

**Table 1. Proposed EDU Contributions of LCFS Credit Proceeds to a Statewide Point of Purchase Rebate Program**

<u>EDU category</u>	<u>% Contribution in years 2019 through 2022</u>	<u>% Contribution in years 2023 and subsequent years</u>
<u>Investor-owned Utilities</u>	<u>67%</u>	<u>67%</u>
<u>Large Publicly-owned Utilities</u>	<u>35%</u>	<u>45%</u>
<u>Medium Publicly-owned Utilities</u>	<u>20%</u>	<u>25%</u>
<u>Small Publicly-owned Utilities</u>	<u>0%</u>	<u>2%</u>

In addition, CARB is proposing changes to Title 17, CCR, section 95491(d)(3)(A)2 that concern unmetered residential EV recharging and are intended to “clarify that an LSE generating credits must use all credit proceeds to benefit the current or future EV drivers across California and not just within its service territory. This would allow opt-in utilities to use base credits proceeds for a statewide point of purchase rebate.”

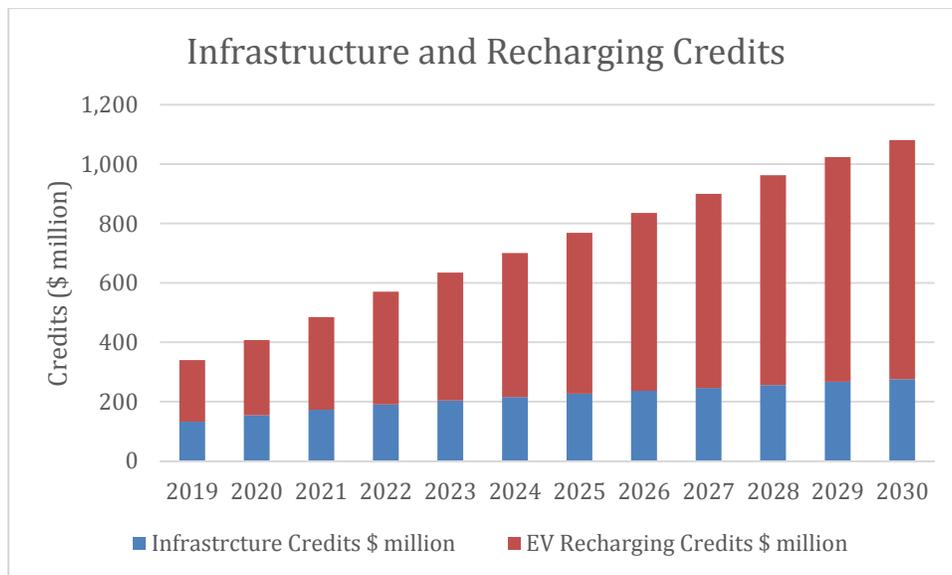
As has been indicated in previous comments, the LCFS credits generated from unmetered residential charging are at best estimates. These credits are not based on actual fuel delivery, as is required for all other fuels under the LCFS. As a result, residential metering or verification of fuel use by other means should be required. While LCFS credits from EV recharging at least have some basis in terms of actual GHG reductions, the LCFS credits CARB is proposing to give to underutilized DC fast charging and hydrogen stations do not result in any such reductions.

As shown above, not all of the value of LCFS credits associated with EV charging are being required to be provided for use in the statewide point of purchase rebate program. Thus, the value of the remaining LCFS credits is based, at least to some degree, on actual reductions in GHG emissions. As such, even if CARB has been directed to provide “capacity” credits for hydrogen and DC fast charging stations “to support the expansions of such infrastructure as directed by Governor’s Executive Order B-48-18”, as stated on pages 6 and 7 of Appendix F to the first 15-day notice, CARB could use the remaining value of the residential EV charging credits to provide funding for underutilized DC fast charging and hydrogen stations rather than creating fictitious LCFS credits that are not based on actual GHG reductions.

It appears that there should be ample funding available for EV/FCV infrastructure. Figure 2 compares the maximum values of the LCFS credits proposed by CARB staff for

infrastructure, to the total value of credits from recharging of light-duty EVs as documented in the August 15, 2018 version of the Illustrative Compliance Scenario Calculator for the “Low Demand” and “Project/LD/Low ZEV/20%/infra” cases. As shown in Figure 2, the magnitude of the value of the infrastructure credits proposed by CARB is small compared to the value of the credits that EDUs receive from residential EV recharging. Although availability of DC fast charging to the extent that such capacity is actually needed could “benefit the current or future EV drivers across California,” CARB would simply have to change EV to “Zero Emission Vehicle (ZEV)” to allow for the use of funds from EV recharging to also support hydrogen station infrastructure, which could obviously benefit current or future FCV drivers across California.

**Figure 2. Comparison of Revenue Associated with CARB Proposed Infrastructure Credits with Available Revenue from Recharging of Light-Duty EVs.**



Based on the above, CARB should abandon its proposal to create LCFS credits that are not based on actual GHG emission reductions to support DC fast charging and hydrogen stations. Instead, CARB should simply require that the surplus credit value generated by the EDUs beyond those needed for the point of purchase rebate program be used to provide funding for underutilized DC fast charging and hydrogen stations. In addition, CARB should use these surplus funds to promote the development of infrastructure for other low-CI fuels such as E85, as use of E85 in California is dramatically limited by the lack of a widespread distribution and dispensing infrastructure.

**CARB Should Decline to Require Verification of all Fuel Provider Pathways, and Should Instead Implement Random Third-Party Verification of a Small Proportion of Pathways**

As has been extensively noted in the public comments, the proposed requirements for verification of fuel producer pathways and annual pathway reports by accredited third parties will impose substantial burdens on producers of low-CI fuels, including ethanol.

First and foremost of these burdens is the cost of paying the verifier for the same work that in-house compliance teams and/or consultancies have already completed, as accredited verifiers will essentially be duplicating work performed as part of LCFS pathway application and reporting purposes. The second is a potential lack of verifiers to choose from given the proposed requirements related to conflicts of interest.

In order to become CARB-accredited, potential verifiers must submit an application to CARB including a self-evaluation of potential conflict of interest (COI) that may exist between them and the fuel provider (e.g. regulated entity or party) that they will be performing verification services for during the “look back period, which is 5 years prior to the start of verification. Any potential COI is also required to be monitored during the year of verification as well as one year after verification services are completed. If “high” conflicts of interest are found to be present, verifiers may be disqualified from providing verification services to specific fuel providers.

The following are some of the services identified in the proposed regulation as posing high potential for conflicts of interest:

1. Regulated party shares any management staff that have been employed by the verification body or vice versa.
2. Verifier or its company has previously provided the following services:
  - Designing, developing, implementing or maintaining data for CARB’s Mandatory Reporting Regulation MRR reporting;
  - Developing CI or fuel transaction data or other GHG engineering analysis;
  - Providing consultative engineering or technical services related to fuel production facility that explicitly identify GHG reductions as a benefit;
  - Conducting internal audit or maintaining a GHG reduction offset project as defined per Cap-and-Trade regulation, or a project to receive LCFS-based credits;
  - Preparing LCFS fuel pathway applications or LCFS reporting manuals;
  - Managing health, environment or safety functions of the entity;
  - Services related to the development of information systems or consulting on the development of environmental management systems except for accounting management systems.
  - Reporting or uploading data on behalf of entity;
  - Owning, buying, selling, trading or retiring LCFS credits;
  - Dealing, brokering or promoting credits on behalf of entity;
  - Appraisal services of GHG liabilities or assets;

- Internal audits related to internal accounting controls or financials;
  - Any legal services; and
  - Expert services to an entity or its trade group related to litigation or regulatory investigation.
3. The verification body cannot provide any monetary or non-monetary incentives to secure contract.

Based on the above, many qualified companies would not be able to receive CARB verifier accreditation creating an issue for regulated parties as there likely to be a very limited number of verifiers to choose from. Another problem is that the COI requirements make it difficult for large, reputable consulting firms to become accredited verifiers due to their corporate associations. These companies generally provide a large range of environmental consulting services on a disaggregated bases from separately-managed offices and locations.

Although the second 15-day notice provides some limited relief related to the issue of third-party verification, it does not address the fundamental problems identified above.

As an alternative to the current CARB proposal, Growth Energy strongly suggests eliminating the applicability of verification requirements to all of the subject regulated entities. CARB should instead require random third-party verification of only a small fraction regulated parties; for example, 5% of regulated entities each year. Clearly, having all regulated entities potentially being subject to a random verification will be close to, if not as effective, as mandatory verification in ensuring compliance but will impose a much smaller financial burden on fuel providers.