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To: [ARB LCFS Workshop](#)
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Subject: First Environment Inc. feedback on ARB Discussion Paper Renewable Natural Gas - Workshop April 17, 2017
Date: Monday, May 15, 2017 12:43:24 PM

To Whom it May Concern,

First Environment is hereby providing comments and feedback regarding the Document below:

State of California
Air Resources Board
Staff Discussion Paper: Fossil and Renewable Natural Gas as a Transportation Fuel Updates to November 23, 2016 Discussion Paper for Working Meeting of December 2, 2016
Updated: April 13, 2017
for Working Meeting of April 17, 2017

Comments are provided according to the order of the questions presented in the Staff Discussion Paper.

Q: Staff is requesting feedback on the use of the average shown in Figure 1 as the standard value for fueling facility energy consumption in all CNG pathways.

A: First Environment agrees that the adoption of a default value (30,996 Btu/MMBtu, equivalent to ~97% efficiency) for the energy use at California fueling facilities is reasonable and will contribute in simplifying facilities registration and future credits verification.

Q: Staff is seeking stakeholder feedback on the distances suggested in Table 3. Staff is specifically interested in feedback and alternate suggestions for: the common pipeline transmission endpoint for RNG to CNG pathways; the potential standardization of fossil transmission distance at 1000 miles; and the use of web based driving distance estimates to represent transmission distance between two discrete points.

Are there challenges or complications with these approaches that staff should consider?

A: First Environment agrees that the adoption of the default distances and methods suggested in Table 3 is reasonable and will contribute in simplifying facilities registration and future credits verification.

The use of a standard 1,000 miles distance for NG to CNG seems appropriate given that a large portion of NG is supplied from fields in Mid-West regions.

The use of a common volume-weighted RNG centroid endpoint in California, determined by ARB and published in the regulation would simplify the registration and verification procedures and would avoid continuously updating a Reporter registration because of added/removed fueling facilities during the course of the activity. If

needed, the determination if the centroid end point could be updated on a regular basis, three years would seem reasonable.

The use of a common web based driving distance estimator would help in simplifying the registration and verification procedures. It would be advisable to specify a certain tool (Google for example) and establish the selection criteria (shortest vs. longest) applicable when more than one routes are available.

Q: Staff is seeking input on development of the updated simplified CI calculator for landfill gas pathways posted April 13, 2017. Please download the form or review the details provided in Appendix B and provide feedback.

A: No comments at this time

Q: Staff is requesting stakeholder feedback on whether the requirements described above would sufficiently limit the risk of double counting and harmonize with U.S. EPA's QAP program for the RFS.

Is the two-quarter time period for energy balancing of renewable attributes appropriate?

A: First Environment believes that limiting the time period for energy balancing to two quarters would simplify the verification process and possibly limit the risk of double counting; On the other hand it is our understanding that it is the industry practice to store gas and use it later as needed. We have seen in the RFS2 gas/renewable attributes being applied for RINs generation later than two quarters after RNG injection in the pipeline.

Potential Regulatory Amendments to Reporting Requirements

Fuel Reporting Units for CNG & L-CNG Reporting

First Environment agrees that it is reasonable to require that the amount of fuel dispensed at all fueling facilities to be reported in therms based on HHV as shown on utility bills. The amount of fuel reported in therms would then be converted in the LRT-CBTS from therms (HHV) to mega joules (MJ) on a LHV basis.

First Environment requires ARB to clarify the approach that the verifier should take regarding on-site storage of CNG upstream of the dispensing pump. While these buffer tanks are usually small volume, they could introduce an error for fueling stations where the daily or monthly volume dispensed is very limited. In other words, the NG/RNG fuel extracted and measured from the pipeline may not exactly reflect the equivalent volume of CNG dispensed to vehicles.

Reporting Total Fuel Amount Dispensed

First Environment agrees that that requiring that the total amount of CNG dispensed (fossil NG and RNG) at the fueling facility per quarter also be reported, as measured by the utility meter and reported on the utility bills would facilitate energy balance accounting and improve data accuracy.

Q: To mitigate the risk of double counting biomethane renewable attributes, staff is considering proposing the following regulatory requirements:

- The biomethane importer or other party reporting and generating credits for biomethane would be required to maintain records of quarterly attestations of no double counting of either biogas or biomethane renewable attributes and the MMBtu*

transferred by all entities in the renewable attribute chain-of-custody.

This documentation is consistent with U.S. EPA RFS quarterly notarized affidavits under the Quality Assurance Plan (QAP) program.

First Environment agrees with this requirement. We also believe that in order to provide reasonable assurance verification, the quarterly attestations need to be supported by verifiable, quantitative evidence tracking the path of volumes of RNG and/or attributes from the landfill to the end user. While we do not think it is required (or possible) to verify the transmission of gas molecules along the entire pipeline, also because often the RNG is transferred according to the modalities described in Figure 2 of the Discussion Paper, we do believe that the notarized attestations need to be supported by quantitative, verifiable evidence allowing demonstrating the transfer of the energy balance along the RNG pathway from landfill to end user.

- *The biomethane importer would be required to maintain agreements with all entities in the renewable attribute chain-of-custody for access by ARB and the importer's third-party verifier to records, facilities, and personnel for purposes of reviewing conformance with LCFS. This would include access to unredacted contracts.*

First Environment agrees with this requirement.

- *In cases where the Producer sells biomethane to more than one entity, recordkeeping requirements would include a monthly energy balance and sales accounting by the Producer at the upgrade facility. These records—covering total quantities of gas whether or not they are used for transportation in California—would be subject to review by third-party verifiers and ARB.*

This requirement is consistent with the QAP program, under which the producer (biomethane upgrader) hires the QAP auditor.

First Environment agrees with this requirement, and we would like to add that based on our experience, it is also often the gas marketer that may have multiple agreements with different clients and distributes the RNG and renewable attributes sourced from one upgrading facility to multiple CNG/LNG processors or end users. In some cases following the tracking of the gas can be challenging, and we believe that a monthly summary at Producer or Marketer level would be helpful.

Q: ARB is working with U.S. EPA RFS program staff on developing requirements to ensure that reported quantities of RNG correctly net additions of fossil NG or other fossil-based additives such as propane to increase the heat content of RNG. We seek stakeholder input on that issue.

A: First Environment agrees with the recent (September 2016) EPA RFS2 guidelines for biogas to CNG/LNG pathways, which require the Producer to provide Certificates of Analysis for the raw biogas and clean RNG produced by the upgrading facility. This is a registration and registration update (3 years) requirement. The EPA also requires a continuous gas analyzer/chromatograph (GA/GC) to be installed for the purpose of measuring the heating content and monitoring the RNG quality. It is our opinion that while this provides a better understanding of the upgrading process, it is not sufficient to disclose the use and quantity of NG or propane added to the RNG flow, if the additions are performed upstream of the gas analysis equipment. In such case, it would actually be necessary to have a primary GA/GC positioned immediately downstream of the biogas upgrading system, before the point of addition of auxiliary fossil fuels. The final RNG gas quality before injection would then be measured by a

secondary GA/GC positioned immediately before the point of injection. The difference in RNG heating value before and after the fossil fuel additions could then be crosschecked with evidence of purchase of NG (utility bills of meter records if measured separately) or propane.

Third-party Designee

A: First Environment does not have experience with credit generation related to fossil NG dispensed at CNG fueling stations but we agree that providing the LCFS would benefit from encouraging participation in the program by entities with limited resources and low financial incentives, such as transit agencies and small fleet owners.

Q: Staff is requesting stakeholder feedback on what documentation is available to substantiate the type of vehicle application.

A: First Environment agrees with the general approach outlined by ARB but doesn't have specific feedback on either how to establish and appropriate volume threshold for HDV vs. LDV/MDV or what type of documentation is available to substantiate LDV/MDV or HDV/CIE claims.

Verification process

Q: Should ARB require potential verification bodies submit general and fuel-specific audit plans for ARB review and approval as part of its accreditation process?

A: First Environment believes that the requirement of submitting general and fuel-specific audit plans by verification bodies has been a weakness of the EPA QAP system, because EPA has provided limited guidance and delegated to third parties to come up with auditing systems. It is common knowledge that the pool of QAP verifiers is very limited and the content of each different QAP is opaque. While this approach may be acceptable for a voluntary auditing system as the RFS2 QAP, we believe that a mandatory compliance verification system should be based on a standard auditing protocol, defined by the Regulator and followed by all the accredited verification bodies. The requirement of submitting a plan would place the existing QAP providers at advantage in comparison to verification bodies willing to enter the field and potentially stymie participation. In addition, if re-verification of credits will be included in the verification regulation, there could be issues arising by applying different auditing plans by different accredited verifiers.

Q: Would annual verification site visits to the LCFS reporting party be necessary to review supporting records for reported fuel quantities, unredacted contracts, and data management practices? Note this would be additional to current QAP practices.

A: First Environment is of the opinion that while the requirement of one annual visit would align the LCFS verification requirements with those of the ARB MRR program, on the other hand it would not necessarily improve the accuracy and reliability of the verification results but would definitely increase the costs. In fact, most of the verification relies on review of contracts, agreements, worksheets that are easily audited by a remote desk review. The proposed requirement of a Monitoring Plan by the producer would in most cases provide all the details that would be described in a face to face meeting. In most cases the visit to the reporting party will not be on the premises of processing or dispensing facilities, therefore not providing an opportunity

for streamlining the verification plan and reducing the costs.

Along the same lines, it is First Environment's opinion that one annual visit of the landfill/upgrading facility would be sufficient to ensure verification of the volume of biogas produced and RNG upgraded and injected in the pipeline. While on site the verifier would check that the process has not undergone substantial modification and most important that the gas measuring and monitoring equipment is maintained and calibrated. Desk review of periodic equipment inspection, similar to the requirements under ARB Offset protocols, would be replace the need for a second visit during the year. Contractual agreements, production records, utility bills and attestations confirming title transfers would be verified during quarterly desk reviews.

Q: Are there scenarios when the LCFS reporting party has contracts that link back to more than one biogas upgrading facility/landfill where the reporting party would prefer their own verification?

A: Yes. It is our experience in the RFS2 that the Producer is not the entity controlling the upgrading facility but the entity aggregating RNG (such as a gas marketer/broker) and delivering to end users, while managing the RINs generation process. In these cases the QAP process focuses on the Producer as described above, tracking the RNG upstream to each upgrading facility, and downstream to each CNG/LNG end user.

Q: Would liquefaction facility owners want to take responsibility for part or all of the verification of bio-LNG and bio-L-CNG supply chains?

No. It is our experience in the RFS2 that the LNG facility owners are only one of the parties in the supply chain but are not the RFS2 Producer (i.e. the entity aggregating RNG and managing the RINs generation process). While there may be cases where the LNG facility operator is also the importer/reporting, this may be the exception rather than the rule.

Additional Considerations to Assure No Double Counting of Renewable Attributes
Staff is seeking feedback on whether additional requirements should be considered to assure no double counting of renewable attributes.

Q: Should biogas source information be published more prominently by ARB to facilitate internet searches by parties interested in whether renewable attribute claims exist for these landfills?

A: Yes, as a party interested in becoming an accredited verifier, First Environment would be in favor of ARB disclosing information regarding renewable attributes' claims for LCFS registered facilities.

Q: Would detection of double claims by other parties be facilitated by publishing the quantity of biomethane (MMBtu) consumed as transportation fuel in California from each landfill each year and including U.S. EPA's published LMOP landfill and energy project data for a sense of total production from the landfill in question?

A: As indicated above, it would be in the interest of any verification body to be able to consult and cross-check public information available regarding the biogas/RNG production capacity of a facility and the actual volume used as transportation fuel in California. On the other hand we understand that it would be a challenge to maintain

such a database current and therefore the information may be only used as a reference check for previous crediting years, but it may not be effective in providing supporting evidence for the current period under verification.

Q: Should ARB require landfills and energy projects applying for fuel pathways to provide data in the voluntary LMOP database?

A: In line with our previous responses, yes, we believe such requirement would be useful. We also understand that Producers and Importers may want to maintain the confidentiality of such information. On the other hand, competing Importers may see an opportunity in locating unused biogas/RNG capacity in registered landfills and this could benefit the program by bringing additional volume of RNG into California.

Q: Do stakeholders have concerns regarding staff's thinking that verifier site visits to retail fueling facilities would not be needed, since relevant records can be reviewed at a location of central data management?

A: First Environment does not have concerns with ARB not requiring verifier site visits at retail fueling facilities. This is in line with EPA RFS2 approach regarding facility registration. According to our experience, while performing RFS2 engineering reviews we usually request detailed information for each of fueling facility (name of operating entity, address, pictures, equipment description, technical drawings, sample of NG utility bills, identification of NG meter with pictures) and considered this sufficient.

Should annual verification of liquefaction facility CI and LNG volumes include a site visit to the liquefaction facility each year? Why or why not?

First Environment is of the opinion that in order to reduce verification cost, an annual site visit to the liquefaction facility is not required. The reporter should attest each year that no modifications to the liquefaction process have taken place that would affect the CI determination. A site visit would be required in case of substantial process modifications that would affect the CI or LNG volume production capacity.

We look forward to answering any questions or comments you may have regarding our feedback.

Thank you and best regards,

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