State of California
AIR RESOURCES BOARD

Second Notice of Public Availability of Modified Text and Availability of Additional Documents and Information

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

Public Hearing Date: April 27, 2018
First Public Availability Date: June 20, 2018
Deadline for First Public Comment: July 5, 2018
Second Public Availability Date: August 13, 2018
Deadline for Second Public Comment: August 28, 2018

At its April 27, 2018, public hearing, the California Air Resources Board (CARB or Board) considered staff's proposed amendments to title 17, California Code of Regulations (CCR), proposed sections 95480 to 95503 and to section 2293.6 and Appendix 1 in CCR title 13, chapter 5, article 3, subarticle 2. These sections respectively comprise the Low Carbon Fuel Standard (LCFS) Regulation and part of the Regulation on Commercialization of Alternative Diesel Fuels (ADF Regulation). The Board did not take action on the proposal at the April 2018 Board hearing.

Through Resolution 18-17, the Board directed the Executive Officer to determine if additional conforming modifications to the regulation were appropriate and to make any proposed modified regulatory language available for public comment, with any additional supporting documents and information, for a period of at least 15 days in accordance with Government Code section 11346.8. The Board further directed the Executive Officer to consider written comments submitted during the public review period and make any further modifications that are appropriate available for public comment for at least 15 days. The Executive Officer was directed to evaluate all comments received during the public comment periods, including comments raising significant environmental issues, and prepare written responses to such comments as required by CARB's certified regulations at California Code of Regulations, title 17, sections 60000-60007 and Government Code section 11346.9(a). The Executive Officer was further directed to present to the Board, at a subsequently scheduled public hearing, staff's written responses to environmental comments and the final environmental analysis for consideration for approval, along with the finalized amendments for consideration for adoption.

The resolution and all regulatory documents for this rulemaking are available online at the following CARB website:

https://www.arb.ca.gov/regact/2018/lcfs18/lcfs18.htm

The text of the modified regulatory language is shown in Attachment A. The originally proposed regulatory language is shown in ~~strikethrough~~ to indicate deletions and underline to indicate additions. Deletions and additions to the proposed language that were made public with the June 20, 2018, 15-day notice are shown in ~~double strikethrough~~ and double underline format, respectively. New deletions and additions to the proposed language that are made public with this notice are shown in **~~bold double strikethrough~~** and **bold double underline format**, respectively.

In the Final Statement of Reasons, staff will respond to all comments received on the record during the comment periods. The Administrative Procedure Act requires that staff respond to comments received regarding all noticed changes. Therefore, staff will only address comments received during this 15-day comment period that are responsive to this notice, documents added to the record, or the changes detailed in attachments to this notice.

Summary of Proposed Modifications

Staff's proposed modifications to previously proposed amendments to sections 95481, 95482, 95483, 95483.2, 95483.3, 95484, 95486, 95486.1, 95486.2, 95487, 95488.1, 95488.2, 95488.3, 95488.5, 95488.6, 95488.7, 95488.8, 95488.9, 95488.10, 95489, 95490, 95491, 95491.1, 95500, 95501, and 95503, title 17 CCR are summarized below and attached to this notice as Attachment A.

Staff's proposed modifications to the originally proposed Carbon Capture and Sequestration Protocol under the Low Carbon Fuel Standard, which is incorporated by reference by the proposed amendments, are summarized below and attached to this notice as Attachment B.

Staff's updates to the original CA-GREET3.0 Technical Support Documentation are summarized below and attached to this notice as Attachment C. Parts C-2 and C-3 of Attachment C are proposed to be incorporated by reference by the proposed amendments.

All materials that were posted in conjunction with an August 8, 2018, public workshop are available at the LCFS meetings web page and are attached to this notice as Attachment D.

The updated Crude Lookup Table values are documented in Attachment E to this notice.

The updated Methodologies for Estimating Potential GHG and Criteria Pollutant Emissions Changes Due to the Proposed LCFS Amendments is included as Attachment F to this notice.

An updated discussion of Benefits of the Proposed Amendments (Chapter IV of staff's Initial Statement of Reasons (ISOR))[1] and Air Quality (ISOR Chapter V) are included as Attachments G and H, respectively.

The following summary does not include all modifications to correct typographical or grammatical errors, changes in numbering or formatting, or non-substantive revisions made to improve clarity. For a complete account of all modifications in the originally proposed regulatory amendments, refer to the double underline and double strikeout sections of the regulation(s) in Attachment A.

A. Modifications to Section 95481. Definitions and Acronyms.

1. In section 95481(a) and (b), staff proposes to add, delete, or modify a number of definitions and acronyms, including but not limited to: "Animal Fat," "Avoided Cost Calculator," "Biomethane," "Cargo Handling Equipment," "Distiller's (or Technical) Sorghum Oil," "Electric Cargo Handling Equipment," "Electric Power for Ocean-Going Vessels" "Green Tariff," "Hydrogen Station Capacity Evaluator," "Large, Medium, and Small Publicly-owned Utility," "Load Serving Entity," "Low-Carbon Intensity (CI) Electricity," "Renewable Hydrogen," "Shore Power," "Yard Truck," and "Yellow Grease."

2. In section 95481(a)(7) and (154), staff proposes to revise the definitions of "Animal Fat" and "Yellow Grease" to clarify that a portion of yellow grease may be characterized as used cooking oil, if evidence is provided to confirm the quantity that it is animal fat and the quantity that is used cooking oil. If no evidence is provided to confirm the portion of yellow grease that is used cooking oil, staff would make the conservative assumption that yellow grease is comprised solely of animal fat.

3. In section 95481(a)(124), staff proposes to replace the list of qualifying energy resources identified in the definition of "Renewable Hydrogen," with "eligible renewable energy resources as defined in California Public Utilities Code sections 399.11-399.36." This clarifies that any resource meeting the criteria established under California's Renewable Portfolio Standard program may also be recognized under the LCFS. These changes are in response to recommendations by the California Public Utilities Commission (CPUC) and other stakeholder comments. A similar change is proposed to replace the list of energy resources eligible for reporting under Lookup Table pathway ELCR 95488.1(b)(2)(A).

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[1] CARB. 2018. Staff Report: Initial Statement of Reasons for the Proposed Amendments to the Low Carbon Fuel Standard Regulation. March 6, 2018. Available at: https://www.arb.ca.gov/regact/2018/lcfs18/lcfs18.htm

B. Modifications to Section 95482. Fuels Subject to Regulation.

1. In section 95482(c)(4), staff proposes to increase the threshold for exempting stations that dispense fossil compressed natural gas (CNG) or fossil propane (LPG) from participation in the LCFS. The annual throughput per station threshold was 50,000 gasoline-gallons equivalent (GGE), and 150,000 GGE is now proposed in response to stakeholder comments. The exemption for stations beneath the threshold expires in 2021 for LPG and in 2024 for CNG, when the use of each fuel becomes deficit-generating in heavy-duty applications.

2. In section 95482(d), staff proposes to omit "shore power provided to ocean-going vessels at-berth" from the exemption for specific applications, meaning that the LCFS regulation does apply to this application.

C. Modifications to Section 95483. Fuel Reporting Entities.

1. In section 95483(b)(1), staff proposes to clarify that bio-CNG, bio-LNG, and bio-L-CNG provided directly to vehicles (as in on-site fueling) are included in the provision that designates the first fuel reporting entity. As previously proposed, the designation could have been interpreted to mean that only biomethane injected to the pipeline is subject to the provisions of subsection (b)(1).

2. In section 95483(c)(1)(A), staff proposes to 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 Board directed the Executive Officer, in resolution 18-17, to explore opportunities to increase the magnitude of ZEV rebates funded by sale of LCFS credits through a statewide point of sale rebate program. Following that direction, staff proposes several changes:

    a. An opt-in EDU, or its designee, generating base credits for residential EV charging must start contributing to the statewide rebate program upon California Public Utilities Commission (CPUC) approval of Pacific Gas and Electric's, Southern California Edison's, and San Diego Gas and Electric's filings to initiate a statewide point of purchase rebate program. CPUC, in decision D.14-12-083, established the criteria and provided the utilities several options for returning the value of LCFS proceeds to the current and future EV drivers. The investor-owned utilities (IOU) will have to file a request with CPUC to modify the relevant decisions to allow participation in a statewide point of purchase rebate program. Opt-in EDUs including Publicly-owned Utilities (POU), which are not regulated by CPUC, must also start contributing to the statewide rebate program at the same time as IOUs.

b. Staff proposes that each opt-in EDU must contribute a minimum percentage of base credits or the net proceeds resulting from the sale of base credits to the statewide rebate program. This percentage must be determined based on the share of base credits received by utilities and the categories specified in section 95483(c)(1)(A) paragraph 1., which include IOUs, large POUs, medium POUs, and small POUs. In 2017, IOUs accounted for over 80 percent of base credits issued for residential EV charging. The share was 14 percent for large POUs and only 4 percent for the medium and small POUs. Thus, contributions from IOUs would be most critical to ensure a healthy funding at the outset of any statewide rebate program.

   Therefore, staff proposes at the outset of the program, in years 2019 through 2022, IOU contribute at least 67 percent of their base credits or resulting proceeds, large POU contribute at least 35 percent and, medium POU contribute 20 percent. Given small POUs receive only a tiny fraction of total base credits they are not required to contribute any credits at the beginning of the statewide rebate program. In 2023 and subsequent years, staff proposes large POU contribute 45 percent, medium POU 25 percent and small POU 2 percent. This change would provide transparency as to how many LCFS credits would flow toward the statewide program on an annual basis. Further, staff would like to provide utilities with the flexibility to participate in the statewide rebate program and still be able to retain some value to support other initiatives to promote the use of electricity as a low carbon fuel including but not limited to rebates for purchase of used EVs, programs focused on charging infrastructure, customer education, customer experience, etc.

c. Staff proposes that the rebate amounts offered to new EVs in the statewide point of purchase rebate program must be calculated based on the battery capacity of the EV. The tiered approach proposed for calculating rebate amounts is based on the same tiered approach used for calculating the Plug-in Electric Drive Motor Vehicle Credit (federal EV tax credit). The tiered structure is simple for auto dealers to understand and implement. This would ensure EVs with higher battery capacity get higher rebates as compared to EVs with lower battery capacity, and would promote battery cost decline through deployment of higher capacity batteries.

3. In sections 95483(c)(1)(B), 95483(c)(2)(C), and 95483(c)(6)(C), staff proposes to clarify credit generation requirements for entities reporting electricity used as a transportation fuel. These requirements include use of LCFS credit proceeds to benefit EV drivers and the reporting entity's customers, educating EV drivers and reporting entity's customers regarding the benefits of EV transportation, and providing an annual itemized summary of efforts and costs associated with meeting these requirements.

4. In section 95483(c)(1)(B)1., staff proposes that incremental credits for residential electric vehicle (EV) charging per Fueling Supply Equipment (FSE) may be generated for either providing low-CI electricity, or for smart charging, but not for both for the same FSE. This would simplify the reporting requirements and prevent any double counting of credits. As previously proposed, generating incremental credit for supplying both low-CI electricity and smart charging at each FSE would have required burdensome reporting requirements to prevent any double counting of credits. For smart charging incremental credits, staff proposes to require a residence to be enrolled in a Time-of-Use (TOU) rate plan if the LSE offers one, and enrollment records must be provided to the Executive Officer upon request. This change would ensure the smart charging benefits are aligned with the utility-offered TOU rates and act as a reinforcing signal to provide maximum grid benefits.

5. In section 95483(c)(2), staff proposes to keep opt-in EDUs as the eligible credit generator for electric vehicle charging at multi-family residences. As previously proposed, the entity owning FSE in multi-family residences would have been eligible to generate credits, but stakeholder comments suggest that EDUs are better suited to receive these credits to help support the point of purchase rebate programs and other utility-specific programs promoting use of electricity as a low carbon fuel, which could include infrastructure development in multi-family residences.

6. In section 95483(c)(6), staff proposes to designate the owner of the FSE to be the eligible entity for generating credits for supplying electricity to electric transport refrigeration units (eTRU), electric power to ocean-going vessels (eOGV), and Electric Cargo Handling Equipment (eCHE). This is consistent with other electricity categories where the first fuel reporting entity and credit generator is the FSE owner. The FSE owner has an option to designate any other entity to be a credit generator on its behalf.

D. Modifications to Section 95483.2. LCFS Data Management System.

1. In section 95483.2, staff proposes adding parallel requirements that entities must update their LCFS Data Management System account information. This requirement is designed to facilitate effective program administration.

2. In section 95483.2(a), and elsewhere as applicable, staff proposes to remove "scanned" from requirements to submit an electronic copy of documents including attestations. Staff intends to update the LCFS data management system to recognize digital signatures, eliminating the need to upload scanned copies of documents with wet signatures.

3. In section 95483.2(b)(8), staff proposes to clarify the FSE registration requirements for residential EV charging and for electric forklifts, electric cargo handling equipment, and for electric power supplied to ocean-going vessels.

E. Modifications to Section 95483.3. Change of Ownership or Operational Control.

1. In section 95483.3(a), staff proposes to allow up to 30 days for the previous and new owner of a registered entity or facility notification to CARB after a change of ownership of an entity or facility, in order to accommodate practical compliance concerns raised by stakeholder comments.

F. Modifications to Section 95484. Annual Carbon Intensity Benchmarks.

1. In section 95484(b) through (d), all carbon intensity (CI) benchmarks in Tables 1, 2, and 3, have been modified to align with the revised baseline CI values for California Reformulated Gasoline (CaRFG), California Ultra Low Sulfur Diesel (ULSD), and conventional jet fuel. The baseline CI values have been recalculated using the updated CA-GREET3.0 (August 13, 2018) model.

   Changes to CA-GREET3.0 that affect the baseline CI values are: (1) updates to the energy intensity for barge and rail transportation modes; and (2) corrections to the cell references for a few electricity parameters. These changes resulted in a 0.02 gCO2e/MJ decrease in the baseline CI value of CaRFG, a 0.01 gCO2e/MJ decrease in the CI value of ULSD, and a 0.01 gCO2e/MJ decrease in the baseline CI value for conventional jet, compared to the values provided in the first notice of modifications to the original proposal (June 20, 2018). These changes are documented in the updated CA-GREET3.0 Supplemental Document and Tables of Changes (August 13, 2018) which is included with this notice as Attachment C, and described briefly below:

   Regarding transportation modes, in response to public comments, staff consulted technical experts from several reputable research institutes (including Argonne National Laboratory) and updated the energy intensity of the barge and the rail transportation modes to 223 Btu/ton-mile and 274 Btu/ton-mile, respectively. These values account for both outbound and backhaul trips.

   Regarding electricity parameters—because CA-GREET3.0 uses 30 regions to develop region-specific greenhouse gas emissions for electricity generation, whereas Argonne's version of GREET1_2016 uses 13 regions—staff adjusted several cell references to accurately match the energy conversion efficiencies, the emission factors, and the technology shares with the region selection and the "Feedstock/Fuel" options.

G. Modifications to Section 95486. Generating and Calculating Credits and Deficits.

1. In section 95486(a)(1), in response to stakeholder comments, staff proposes to clarify that credits and deficits can be issued only upon reconciliation of fuel quantity reported per fuel pathway code (FPC) using transaction types Sold with Obligation and Purchased with Obligation.

2. In section 95486(a)(5)(A), staff proposes to clarify that all carryback credit transfers must be completed in LRT-CBTS by April 30th. This change would ensure all carryback credit transfer are completed by the annual reporting deadline so that carryback credits acquired can be used for demonstrating compliance.

H. Modifications to Section 95486.1. Generating and Calculating Credits and Deficits Using Fuel Pathways.

1. In section 95486.1(c)(1)(A)2., staff proposes to estimate the quantity of non-metered electricity used in residential EV charging within service territories for which the EDU has not opted in to the LCFS program and assign it to opt-in EDUs for generation of base credits based on the pro-rata share of EVs in the service territory of opt-in EDUs. This change would ensure that the credits for residential EV charging that are not currently claimed are not left stranded and instead could be used to provide a statewide point of purchase rebate.

2. In section 95486.1(c)(2), and elsewhere as applicable, staff proposes to add "or smart electrolysis" in order to clarify the provisions that apply to both smart charging pathways (for hourly-reported charging of EVs using grid electricity) and smart electrolysis pathways (for hourly-reported use of grid electricity in hydrogen electrolyzers).

3. In section 95486.1(c)(2)(B), staff proposes to clarify the instances when the incremental credit calculation is used to determine the improvements in electricity compared to the average grid carbon intensity. These instances are limited to:

   a. Low-CI electricity supplied to residential EV charging; or
   b. Smart charging: electricity supplied to residential EV charging and reported by hourly windows; and
   c. Smart electrolysis: electricity supplied to a hydrogen electrolyzer and reported by hourly windows.

   Incremental smart charging credits cannot be claimed in addition to incremental low-CI credits.

4. In section 95486.1(d)(1), staff proposes to clarify the pathway options and the calculation used to determine credits for non-residential EV charging. These options include a smart charging pathway; however, staff proposes to delete subsection (d)(2) because credits for smart charging for non-residential EV charging are not calculated using the incremental credit calculation in section 95486.1(c)(2)(B), and cannot be in addition to credits for a low-CI pathway.

5. In section 95486.1(e), in response to stakeholder comments staff proposes to clarify that all non-EV charging applications using electricity as a transportation fuel can generate credits using the Lookup Table pathways for California Average Grid Electricity or Zero-CI electricity, or a carbon intensity value certified using the Tier 2 pathway application process, including through book-and-claim accounting. These applications are not eligible to generate credits using smart charging pathways.

6. In section 95486.1(f), staff proposes to clarify the options for obtaining a certified CI value for hydrogen. Hydrogen produced via electrolysis using average grid electricity is eligible to generate incremental credits using smart electrolysis pathway CI values and the incremental credit calculation in section 95486.1(c)(2)(B). These changes also clarify that smart electrolysis credits are incremental and cannot be in addition to credits for a low-CI electricity pathway.

I. Modifications to Section 95486.2. Generating and Calculating Credits for ZEV Fueling Infrastructure Pathways.

1. In section 95486.2(a)(1)(C), in response to stakeholder comments staff proposes to add a provision restricting HRI crediting for stations built as a required mitigation measure pursuant to California Environmental Quality Act (CEQA). This restriction is designed to ensure that the infrastructure credits drive new investment and the installation of new stations rather than stations that would have been built without this credit.

2. In section 95486.2(a)(2)(D), staff proposes to add the requirement that applicants report the expected daily permitted hours of operation for the station, which would be used to determine the station capacity and the station availability for HRI credit calculation pursuant to section 95486.2(a)(6)(A). If the permitted hours of operation for the station are less than 24 hours, the applicant must provide documentation from a permitting authority demonstrating that the permitted hours of operation are limited.

3. In section 95486.2(a)(2)(E), and elsewhere as applicable, staff proposes to calculate station nameplate refueling capacity for the permitted hours of operation using the HySCapE 1.0 model or an equivalent model or capacity estimation methodology approved by the Executive Officer. The HySCapE

model has been developed by the National Renewable Energy Laboratory under contract from the California Energy Commission and uses simple, transparent methods for capacity estimation that can be consistently applied for different station configurations. The applicant must provide a completed model with the application. This change is in response to stakeholder comments that the initially-proposed 12-hour capacity is not representative of actual hydrogen station refueling profiles.

4. In section 95486.2(a)(2)(J) and 95486.2(a)(3)(C), staff proposes to require justification for the proposed station location in the initial application. The Executive Officer may reject the application if satisfactory justification is not provided for the proposed station location based on the criterion provided in section 95486.2(a)(2)(J). This change would ensure the stations approved under HRI pathway contribute to developing a robust hydrogen refueling station network to support ZEV adoption.

5. In section 95486.2(a)(3)(A), staff proposes an equation to calculate estimated potential HRI credits to implement the 2.5 percent limit on HRI credits. As proposed by staff in the June 20 notice, new HRI applications wouldn't be approved if the total HRI credits generated in the prior quarter exceeds 2.5 percent of that quarter's total deficits. This requirement was added to encourage early development of stations while capping the maximum supply of HRI credits. The proposed equation would determine the estimated potential HRI credits for all approved stations, including both operational and non-operational stations. This value would be based on the HRI credits issued in the prior quarter multiplied by the ratio of total approved station capacity (including both operational and under construction stations) to the total capacity of operational stations. Once the estimated potential HRI credits, calculated using this equation, exceeds 2.5 percent; new HRI applications would not be approved and would be queued up until the potential HRI credits fall below the 2.5 percent limit.

6. In section 95486.2(a)(3)(B)(3), staff proposes to clarify that the Executive Officer may request additional information or clarification necessary to evaluate application adequacy

7. In section 95486.2(a)(4), staff proposes several changes to requirements to generate HRI credits:

    a. Stations must be listed as "open for retail" on the Station Operation Status System (SOSS). SOSS is a database established and managed by the California Hydrogen Fuel Cell Partnership that provides real-time information about station operations. The station availability reported via

SOSS would be used for determining the proposed uptime factor for calculating HRI credits pursuant to section 95486.2(a)(6)(A).

b. Staff proposes to remove the previously proposed requirement that the station dispenser performance must be verified by the County Department of Weights and Measures. Instead, staff is proposing that all dispensers undergo type evaluation according to the California Type Evaluation Program (CTEP) and have either a temporary use permit or a type approval certificate of approval issued by the California Department of Food and Agriculture/Division of Measurement Standards. This change would allow HRI requirements to align with the current industry practices.
c. Staff added a requirement to complete the Fueling Supply Equipment (FSE) registration process pursuant to section 95483.2(b)(8), consistent with reporting requirements.
d. In response to stakeholder comments, staff proposes to increase the maximum company-wide weighted average CI to 150 gCO_2e/MJ. After incorporating the Energy Economy Ratio (EER) adjustment of 2.5 for light-duty hydrogen fuel cell vehicles, the maximum CI still meets the CI requirement of SB 1505 (30 percent reduction relative to gasoline). This change would provide more flexibility for hydrogen production and transport methods (such as liquid hydrogen delivery).

8. In section 95486.2(a)(6), staff proposes updates to the reporting and recordkeeping requirements:

a. Staff proposes to modify how station availability is determined to better align with the proposed approach of using the refueling capacity based on permitted hours of operation. Under the initial proposal, station availability was limited to a 6 am to 9 pm window.
b. Staff proposes changes to the quarterly cost and revenue data reporting requirements in section 95486.2(a)(6)(C), to clarify that the total itemized costs and revenues must be reported for all specified items. Staff also proposes to clarify that other external funding received towards capital expenditures should be included along with total grant revenue for capital expenditures. Staff also proposes to add a requirement to provide total funding towards operational and maintenance expenditures.

9. In section 95486.2(b)(1)(A) and 95486.2(b)(2)(I), staff proposes the FSE must be located in California and open to the public for charging, and must report the total permitted hours of operation in the FCI application. If the permitted hours of operation for the site are less than 24 hours, the applicant must provide documentation from a permitting authority demonstrating that daily permitted hours of operations are limited. This change would ensure the FSE availability is accounted based on the total permitted hours of operation which would be used for FCI credit calculation pursuant to section 95486.2(b)(5).

This would allow charging equipment installed in locations with restricted access hours to be eligible for infrastructure credits, such as in State and National Parks.

10. In section 95486.2(b)(1)(B), staff initially proposed that each site applying for FCI crediting must have charging equipment capable of supporting at least two different fast charging connector protocols and must have at least one FSE (Fueling Supply Equipment) with SAE CCS and one FSE with CHAdeMO connector protocol type available on the site. In addition, the previously-proposed text would have required that no more than two-thirds of all the FSEs at a site could follow only one connector protocol.

    This was proposed to ensure the program can promote a diverse charging network capable of supporting variety of electric vehicles. However, stakeholder comments pointed out that given the lack of standardization among charging connector protocols this requirement might be too prohibitive for some technology providers. In response to this feedback, staff is proposing to increase the limit on one connector type at a site from two-thirds to three-fourths. Further, staff also proposes these connector type requirements would be applicable only for the applications that are submitted after an applicant's estimated potential FCI credits exceed 0.5 percent of total program deficits in the prior quarter.

    Based on staff's analysis of Department of Motor Vehicle (DMV) data, the maximum share of registered EVs in California by any brand is about 20 percent. Staff applied the same percentage to the total FCI credit limit, which is 2.5 percent of prior quarter's deficits, to arrive at the 0.5 percent value. The estimated potential FCI credits for an applicant would be calculated using the same methodology as proposed for calculating total estimated FCI credits in section 95486.2(b)(3). This change would allow greater flexibility for the market to drive optimal connector protocol ratios, yet maintain equity in the program by requiring a diverse set of connector types to be installed.

11. In section 95486.2(b)(2)(D), in response to stakeholder comments, staff proposes to add a provision restricting FCI crediting for FSE built as a required mitigation measure pursuant to the California Environmental Quality Act (CEQA). This restriction is designed to ensure that the infrastructure credits drive new investment and the installation of new charging infrastructure rather than infrastructure that would have been built without this credit.

12. In section 95486.2(b)(2)(E), staff proposes to include reporting of connector type and model of each FSE. Staff also proposes to limit the total amount of nameplate power rating to 2,500 kW per site. The initial proposal had a limit of 1,500 kW based on total effective simultaneous power rating for FSE at a site. Staff is proposes, notwithstanding this limit, an applicant may request

the Executive Officer to approve an application with total nameplate power rating for all FSE at a single site up to 6,000 kW. However, the total number of FSE at sites with total nameplate power rating greater than 2,500 kW cannot exceed 10 percent of total FSE approved under FCI pathway. In addition, the applicant must provide justification for requesting a total power rating greater than 2,500 kW at the given site. This change is proposed in response to stakeholder comments that 1,500 kW may be too limiting to meet future demand at some high traffic locations. However, staff would like to emphasize that in no way does this requirement restrict a site to be limited to 2,500 kW (or 6,000 kW) total power rating but only limits the total power rating at a site eligible to receive FCI credits. Staff also proposes to use the nameplate power rating, which is a more easily verifiable value, instead of using effective simultaneous power rating for evaluating compliance with the proposed power rating limit per site.

13. In section 95486.2(b)(2)(F), staff proposes to require that the effective simultaneous power rating for each FSE must be at least 50 percent of the nameplate power rating. This would ensure that the useful FSE capacity is not significantly lower than the capacity calculated using the nameplate power rating, which is also used in the credit calculation.

14. In section 95486.2(b), and elsewhere as applicable, staff proposes to clarify that both nameplate power rating and effective simultaneous power rating must be reported.

15. In section 95486.2(b)(2)(G), staff proposes to make the following changes:

    a. Staff is proposing that the FCI Charging Capacity used in the credit calculation be proportional to the power rating raised to the 0.45 power, rather than directly proportional to power rating as in the original proposal. This change was in response to stakeholder comments that the cost of installing a fast charger is not proportional to the power rating. The proposed FCI charging capacity method for credit calculation is based on best cost estimates available to staff and is designed to ensure the estimated value of awarded credits scales proportionally with the installation costs of equipment with higher power ratings.
    b. Staff is proposing a maximum power rating for FCI credit calculation of 350 kW instead of 150 kW. Several automakers have already announced or have plans to launch next generation of EVs which could support charging at higher power ratings. This change would allow higher power rating chargers to be eligible for FCI crediting and would provide incentive to create a charging network capable of supporting fast charging for the next generation of EVs.

16. In section 95486.2(b)(3)(A), staff proposes an equation to calculate estimated potential FCI credits to implement the 2.5 percent limit on FCI credits. As proposed by staff in the June 20 notice, new FCI applications wouldn't be approved if the total FCI credits generated in the prior quarter exceeds 2.5 percent of that quarter's total deficits. This requirement was added to encourage early development of stations while capping the maximum supply of FCI credits. The proposed equation would determine the estimated potential FCI credits for all approved FSE, including both operational and non-operational FSE. This value would be based on the FCI credits issued in the prior quarter multiplied by the ratio of total approved FSE capacity (including both operational and under construction FSE) to the total capacity of operational FSE. Once the estimated potential FCI credits, calculated using this equation, exceeds 2.5 percent; new FCI applications would not be approved and would be queued up until the potential FCI credits fall below the 2.5 percent limit.

17. In section 95486.2(b)(3)(B), staff proposes to add a method for calculating estimated potential FCI credits for an individual applicant which would be used to determine compliance with the connector protocol type requirements proposed in section 95486.2(b)(1)(B).

18. In section 95486.2(b)(3)(C)(3), staff proposes to clarify that the Executive Officer may request additional information or clarification necessary to evaluate application adequacy.

19. In section 95486.2(b)(4), staff proposes to update the following requirements to generate FCI credits:

    a. In section 95486.2(b)(4)(C), staff proposes to clarify that FSEs charging a fee for service must be capable of accepting all major credit and debit cards without putting any limitations on point of sale payment methods. In response to stakeholder comments, the initially proposed requirements for payment methods are simplified given that there is a separate rulemaking process occurring in response to Senate Bill 454 (Corbett, 2013), which addresses the details of access and payment methods for electric vehicle charging stations. This rulemaking is expected to be completed in 2019.
    b. In section 95486.2(b)(4)(E), staff proposes to remove the initially proposed requirement to include the FSE owner's declaration that the FSE meets an appropriate SAE fueling protocol, as required in California. This requirement was proposed to align the FCI provision with the HRI provision, however, there is no requirement for fast charging equipment in California meet any SAE fueling protocol.

c. In response to stakeholder comments and to avoid including requirements that could be duplicative or in conflict with any future regulations, staff proposes to remove the requirement that the charging unit's performance must be verified by the County Department of Weights and Measures. This issue is being addressed by the Division of Measurements and Standards in a separate rulemaking.
d. In section 95486.2(b)(4)(F), staff proposes a requirement to complete the Fueling Supply Equipment (FSE) registration process pursuant to section 95483.2(b)(8), consistent with reporting requirements.
e. In section 95486.2(b)(4)(G), staff proposes that that an FSE must be operational within 12 months from the date of approval otherwise the application would be canceled. The applicant could re-apply for the same FSE but it would be eligible for only two years of crediting instead of five years. This requirement would ensure that applicants are committed and prepared to install FSE upon approval of the application and are not holding any FCI credits from other applicants.
f. In section 95486.2(b)(4)(H), staff proposes to limit the total value of FCI credits available to any given FSE to the difference between the total capital expenditure for the FSE borne by the FSE owner and the total grant and other funding revenue received by the FSE owner towards the capital expenditure for that FSE installation. The FCI credit value would be estimated based on the quarterly average credit prices published by CARB, and would be discounted by 10 percent to determine the dollar value in the application year. This change is in response to stakeholder comments about potential of over-crediting FSE under FCI pathway and would prevent over-compensating stations when LCFS credit values are very high and/or FSE installation costs become low. This change would not affect LCFS credit generation and derived value for dispensed electricity.

20. In section 95486.2(b)(5), staff proposes to revise the equation used for calculating FCI credits to use FCI charging capacity as determined pursuant to section 95486.2(b)(2)(G), instead of using the effective simultaneous power rating. As mentioned above, the changes were made in response to stakeholder comments that the original method of capacity determination and in turn credit calculation could have resulted in over-crediting of higher power rating chargers, relative to their installation costs.

21. In section 95486.2(b)(6), staff proposes minor modifications to the reporting requirements:

a. Similar to the changes proposed for HRI provision, staff proposes to modify how the FSE availability is determined. This change would allow comparison of permitted hours of operation with the reported FSE

availability to determine the uptime factor which is used for calculating credits.

b. Staff proposes minor changes to the quarterly cost and revenue data reporting requirements in section 95486.2(b)(6)(B). Staff added "total" for all specified cost items to provide additional clarity. Staff also proposes to clarify that other external funding received towards capital expenditures should be included along with total grant revenue for capital expenditures. Staff also proposes to add a requirement to provide total funding towards operational and maintenance expenditures.

J. Modifications to Section 95487. Credit Transactions.

1. In section 95487(b)(1)(D), staff proposes to clarify the reporting of Type 2 credit transfers, in response to stakeholder comments.

K. Modifications to Section 95488.1. Fuel Pathway Classifications.

1. In section 95488.1(b)(2)(A), staff proposes to replace the list of energy resources that may be reported using the Lookup Table pathway for zero-CI electricity with "eligible renewable energy resources as defined in California Public Utilities Code sections 399.11-399.36, excluding biomass, biomethane, geothermal, and municipal solid waste." This clarifies that any resource meeting the criteria established under California's Renewable Portfolio Standard program and which has been determined to achieve a CI of 0 gCO_2e/MJ using the CA-GREET3.0 model may be reported using this pathway. These changes are proposed in response to stakeholder comments.

   Stakeholders also requested that staff consider RPS-eligible hydroelectric facilities[2] as a qualifying zero-CI source. The following types of hydroelectric facilities may be RPS-eligible and as such would be included as a zero-CI pathway under the proposed modification: 1) Small hydroelectric facilities 30 MW or less; 2) Conduit hydroelectric facilities 30 MW or less; 3) Hydroelectric generation units 40 MW or less and operated as part of a water supply or conveyance system; and 4) Incremental hydroelectric facilities.

2. In section 95488.1(c), staff proposes to add distiller's sorghum oil (or technical sorghum oil) as a feedstock for biodiesel and renewable diesel under the Tier 1 classification. In accordance with this change, the Tier 1 Simplified CI Calculator for Biodiesel and Renewable Diesel has been modified to accommodate this feedstock. This change mirrors the recent

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[2] The specific criteria for RPS-eligible hydroelectric facilities can be found in California Public Utilities Code sections 399.12 and 399.12.5.

decision by the federal U.S. Environmental Protection Agency to recognize sorghum oil as a feedstock under the Renewable Fuel Standard.[3] Consistent with distiller's corn oil, this feedstock is also added to the list of specified source feedstocks in 95488.8(g).

L. Modifications to Section 95488.3. Calculation of Fuel Pathway Carbon Intensities.

1. In section 95488.3(b), staff has recalculated the emission factors used in each Tier 1 Simplified CI Calculator to align with proposed changes to CA-GREET3.0, and made other modifications to Tier 1 Simplified CI Calculators (released June 20, 2018). These changes are documented in the CA-GREET3.0 Supplemental Document and Tables of Changes (August 13, 2018), which is included in Attachment C to this Notice. The updated Tier 1 Simplified CI Calculators (August 13, 2018) are listed under the References section of this Notice, to be incorporated by reference by the proposed amendments.

2. In section 95488.3(b)(1), staff proposes to modify the title of the "Tier 1 Simplified CI Calculator for Starch and Corn-Fiber Ethanol," which determines CI values for corn ethanol, grain sorghum ethanol, and corn- and grain sorghum-fiber ethanol, to the "Tier 1 Simplified CI Calculator for Starch and Fiber Ethanol." Grain sorghum is often mixed with corn at the ethanol plants and quantities of each feedstock are reported; both ingredients contain similar amounts of fiber, which can be converted to fiber ethanol. The calculator already has the capability of evaluating ethanol production of fiber derived from corn and grain sorghum, and staff believes the newly proposed name is more inclusive and representative of common practice.

3. In section 95488.3(b)(8), staff proposes to modify the title of the "Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Food, Green and Other Organic Waste" to "Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Organic Waste." Staff proposes this change to reflect the wide variety of organic wastes that can be assessed using this Simplified CI Calculator.

   In the Tier 1 Manual, staff has also clarified the types of waste that can be included under each of the three categories that are represented: food scraps are waste that is either separated from municipal solid waste or separately collected from residences, restaurants, schools, hospitals, grocery stores and other points of origin identified in the Tier 1 Manual. According to a 2014

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[3] Final Rule. Renewable Fuel Standard Program: Grain Sorghum Oil Pathway. EPA-HQ-OAR-2017-0655. U.S. Environmental Protection Agency. 40 CFR Part 80. www.regulations.gov

statewide waste characterization study,[4] in California, the 97.5 percent (by mass) of these wastes is landfill disposal; therefore, the system boundary for this feedstock includes the fugitive methane emissions from landfills that are avoided by diversion of the material to its use as a biofuel feedstock. The avoided fate (also termed the baseline, or business-as-usual fate) of the remaining 2.5 percent is recycling into compost.

Staff has also clarified what is meant by green waste, by changing this category to "urban landscaping waste (ULW)," which is the portion of MSW that includes materials resulting from landscaping activities, e.g., leaves, grass clippings, branches, and other yard waste typically collected by municipalities. In California, the avoided fate of 35.9 percent (by mass) of these wastes is landfill disposal; therefore, the system boundary for this feedstock includes the fugitive methane emissions from landfills that are avoided by waste diversion. The avoided fate of the remaining 64.1 percent is recycling into compost.

The "other organic waste" category can be used for materials that do not fit the food scraps or ULW descriptions, compositions, and avoided fate assumptions. Applicants for this category must submit the moisture content of the material, the degradable organic carbon (DOC) content and the fraction of DOC that decomposes (DOC_f). Both user-defined DOC and DOC_f must be determined either from representative sampling and laboratory analysis, or using the equations provided in the calculator and the Tier 1 Manual. Additionally, applicants must demonstrate the business-as-usual fate (e.g. landfill, compost, animal feed, and land application) and diversion rate of the material from typical commercial practices.

M. Modifications to Section 95488.5. Lookup Table Fuel Pathway Application Requirements and Certification Process.

1. In sections 95488.5(d), (e), and Table 7-1, and elsewhere as applicable, staff proposes to modify the description of Lookup Table pathways for electricity to clarify that these pathways can be used for reporting the electricity "used as a transportation fuel" in several applications such as fixed guideways (listed in section 95483(c)(4) through (7)), not limited to electric vehicle charging. This modification excludes smart charging pathways, which can only be used for charging battery and plug-in hybrid electric vehicles.

2. In section 95488.5(e), Table 7-1, several of the Lookup Table CI values changed minimally as a result of updates to Transportation and Distribution parameters and Electricity parameters in CA-GREET3.0. The CI value of

[4] 2014 Disposal-Facility-Based Characterization of Solid Waste in California. October 6, 2015. Publication # DRRR-2015-1546. California Department of Resources Recycling and Recovery (CalRecycle). Available at: http://www.calrecycle.ca.gov/Publications/Documents/1546/20151546.pdf

California Average Grid Electricity decreased because staff resolved an error in the California resource mix; the percentage of biomass and nuclear power from CEC (2016) were inadvertently transposed in the previous version of the model. These changes are documented in the CA-GREET3.0 Supplemental Document and Tables of Changes (August 13, 2018) and CA-GREET3.0 Lookup Table Pathways Technical Support Documentation (August 13, 2018), which are included in Attachment C to this Notice.

3. In section 95488.5(f), staff proposes to clarify the process for an out-of-state producer of hydrogen by electrolysis to apply for smart electrolysis pathway using the Tier 2 application process, for hydrogen imported to California. The values calculated in Table 7-2 are only applicable to California electricity, but staff recognizes the potential benefit of aligning use of electricity for electrolysis with grid demand in other regions.

4. In section 95488.5(f), Table 7-2, under the previous proposal, the CI values for smart charging or smart electrolysis were based on the historical curtailment probability. The intent of the provision is to promote time shifting of EV charging or electrolytic hydrogen load to provide emission reductions. However, stakeholder comments expressed that calculating these credits using grid's marginal greenhouse gas emissions would be a better approach. In response to stakeholder comments, staff proposes to update the methodology and use marginal greenhouse gas emissions signal from the California Public Utilities Commission's (CPUC) Avoided Cost Calculator, instead of using curtailment probability to determine the hourly CI values for smart charging or smart electrolysis pathways.

N. Modifications to Section 95488.8. Fuel Pathway Application Requirements Applying to All Classifications.

1. In section 95488.8(i)(1) and (2), staff proposes to clarify that book-and-claim accounting may be used for electricity and biomethane supplied to produce hydrogen that is used as a transportation fuel, as well as hydrogen used in the production of a transportation fuel—including both hydrogen used in petroleum refineries, which can be claimed under the Renewable Hydrogen Refinery Credit provision, and hydrogen used e.g., in hydrotreatment for renewable diesel production.

2. In section 95488.8(i)(1)(A), staff proposes to recognize low-CI electricity under the book-and-claim accounting rules that is delivered to a California Balancing Authority (CBA) in a manner that satisfies the criteria of California Public Utilities Code section 399.16, subdivision (b)(1) under California's Renewables Portfolio Standard Program. This category requires that the energy and its environmental attributes are delivered to a CBA without substituting electricity from another source, and may include out-of-state generation facilities that deliver according to an hourly or sub-hourly

schedule. This allows fair treatment of out-of-state renewables in line with existing California law.

3. In section 95488.8(i)(1)(B), staff proposes several minor clarifying modifications in response to stakeholder comment, including that retirement of renewable energy credits for the purpose of demonstrating Green Tariff Shared Renewables procurement to the California Public Utilities Commission does not constitute a double claim.

O. Modifications to Section 95488.9. Special Circumstances for Fuel Pathway Applications.

1. In section 95488.9(b)(4), staff proposes to allow applicants to request a new Temporary CI only for a fuel or feedstock-fuel combination that is not listed in Table 8. This provision would incentivize novel pathways by allowing applicants to generate credits while the application for fuel pathway certification is being prepared or evaluated by CARB.

2. In section 95488.9(b), staff proposes to revise the rounding methodology used in determining the Temporary CI values. Staff identified the highest certified CI for each pathway (where more than one such pathway has been certified), added 5 percent to that value, and rounded to the nearest five CI points—rather than rounding up to the nearest five as originally proposed. Upon detailed examination, staff noticed that using the "rounding up" method would result in disproportionately-conservative values for some pathways. This change results in a decrease to the Temporary CI values for ethanol from any sugar feedstock and biomethane (CNG, LNG and L-CNG) from wastewater or organic waste.

   Staff proposes to increase the Temporary CI value for ethanol from cellulosic biomass based on a recently-updated certified pathway using the same proposed methodology described above.

3. In section 95488.9(c), staff proposes to clarify that provisional pathways, which are certified on the basis of three months of operational data, may be considered for either a new facility or an existing facility that has implemented a process change. This allows an improved pathway to be more accurately modeled by re-applying with a new operational data set, rather than averaging the new process parameters with the prior 24 months of data.

P. Modifications to Section 95489. Provisions for Petroleum-Based Fuels.

1. In section 95489(c), staff proposes multiple clarifications to innovative crude to specify where a provision applies to innovative transport and production.

2. In section 95489(c)(1)(A)5., staff proposes to remove the list of additional energy resources that were proposed by staff in the June 20 notice to be eligible for use in innovative crude production or transport, because the benefits of including these sources in crude applications may require a more extensive analysis than can be accomplished given the current rulemaking timeline.

3. In section 95489(e), staff proposes to remove the term "pilot" from the Refinery Investment Credit Pilot Program. The "pilot" designation may imply a temporary nature of the program dissuading potential investments in innovative refinery projects with potential for significant greenhouse gas emission reductions. Staff believes that the removal of the pilot designation provides long-term policy certainty that refinery operators are looking for to make investment decisions reading innovative projects.

4. In section 95489(f), staff proposes to revise the definitions of carbon intensities for natural gas and renewable natural gas used in calculating credits for the Renewable Hydrogen Refinery Credit Program. The revisions intended to clarify the system boundary and prevent inaccurate credit calculations.

Q. Modifications to Section 95491. Fuel Transactions and Compliance Reporting.

1. In section 95491(d)(1)(C), staff proposes to clarify the rules for allocating feedstock to fuel quantities in the case of a fuel production facility that processes multiple feedstocks. These changes clearly prohibit double counting. The proposed system for LCFS verification would include reviewing all feedstock inputs and fuel production regardless of final market to assure no double counting of feedstock attributes. The proposed change to clarify this intent specifies that feedstock attributes must be counted as processed (subtracted from the inventory accounting system) for all fuel produced in each quarter, not just fuel delivered to California and reported in the LRT. Fuel reported in the LRT would use the yield calculation specified in the regulation, or an allocation method approved by the Executive Officer.

   Staff also proposes a provision to address feedstocks that are differentiated by chemical analysis of a converted fraction of measured feedstock. Because such feedstocks, e.g., the fiber fraction of corn or grain sorghum, are not measured by inventory accounting, a methodology is needed to clarify the requirements for labeling and reporting produced fuel associated with each converted fraction.

2. In section 95491(d)(2), staff cross-referenced the FSE registration requirements as set forth in section 95483.2(b), wherever applicable.

3. In section 95491(d)(3)(A) paragraphs 2. through 7., staff proposes to add a separate requirement for LSE and non-LSE electricity credit generators to use LCFS credit proceeds to benefit EV drivers, educate them about the benefits of EV transportation, and annually provide an itemized summary of efforts and costs associated with meeting this requirement. In the current regulation, non-LSEs are required to meet the same requirements as LSEs. This change would ensure requirements for using LCFS proceeds and reporting on those efforts are clear for LSE and non-LSE entities.

4. In section 95491(d)(3)(A)2., staff proposes 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 credit proceeds for a statewide point of purchase rebate.

5. In section 95491(d)(3)(A)5., staff proposes to require IOUs to provide, in addition to the supplemental information reported annually, an unredacted copy of the annual implementation report required under Order 4 of Public Utilities Commission of California (PUC) Decision 14-12-083, or any successor PUC Decisions. In the current regulation, the two are available as options but staff is proposing to require both. This change would allow CARB to receive most updated and detailed information about IOUs efforts to provide benefits to EV drivers and to promote electricity as a low carbon transportation fuel.

6. In section 95491(d)(3)(B), staff proposes to clarify the reporting requirements for generating credits for metered residential EV charging using different fuel pathways. If Renewable Energy Certificates (REC) are generated for low-CI electricity that is claimed for EV charging, then staff proposes that evidence must be provided to demonstrate REC retirement in WREGIS for the purpose of LCFS credit generation. For smart charging incremental credits, staff proposes that a residence must be enrolled in a Time-of-Use (TOU) rate plan if the LSE offers one, and enrollment records must be provided to the Executive Officer upon request.

7. In section 95491(d)(3)(C), staff proposes to clarify the reporting requirements for generating credits for non-residential EV charging using different fuel pathways. The proposed changes clarify the reporting requirements specific to generating incremental credits using low-CI electricity or smart charging pathways, consistent with the previous section.

8. In section 95491(d)(3)(E)2., staff proposes to clarify that in the absence of metered data, the quantity of electricity supplied to electric forklifts can be estimated using a methodology approved by the Executive Officer. This is allowed under the existing LCFS regulation as the majority of electric forklift charging in California is non-metered.

9. In section 95491(d)(4)(D), staff proposes to clarify the requirements for reporting electricity to generate incremental credits for smart electrolysis, consistent with the requirements for EV smart charging.

R. Modifications to Section 95491.1. Recordkeeping and Auditing.

1. In section 95491.1(b), staff proposes to cite the specific subsection, 95483(a), which applies only to liquid fuels, in order to clarify that requirements related to product transfer document apply only to fuel reporting entities for liquid fuels.

S. Modifications to Section 95500. Requirements for Validation of Fuel Pathway Applications; and Verification of Annual Fuel Pathway Reports, Quarterly Fuel Transactions Reports, Crude Oil Quarterly and Annual Volumes Reports, Project Reports, and Low-Complexity/Low-Energy-Use Refinery Reports.

1. In sections 95500(b)(2)(B) and (c)(2)(B), staff proposes to include non-liquid alternative fuels and deficit-generating alternative fuels in the eligibility threshold for deferred verification, excluding fuel pathways with biomethane using book-and-claim accounting. Expanding eligibility for verification deferral is necessary for consistency and would help small fossil CNG and fossil LPG facilities (previously opt-in fuels) to participate in LCFS. Biomethane is a fuel that can be high risk for accounting errors and double counting, therefore biomethane must be verified annually to meet the regulatory requirements. CARB staff do not believe that many biomethane fuel pathway holders using book-and-claim accounting would be affected by this requirement because they typically generate more than 6,000 credits per year. In addition, biomethane suppliers also voluntarily participate in U.S. EPA's Quality Assurance Plan (QAP) program which requires quarterly audits and semi-annual site visits due to the risk of RIN invalidation. CARB staff anticipates that LCFS biomethane verification will be stacked with QAP audits for efficiency as QAP auditors seek and maintain accreditation to conduct LCFS verification services.

2. In section 95500(c)(2)(C), staff proposes to add a heading to clarify that the verification exemption applies to designated transactions and to state the threshold consistent with the eligibility threshold for deferred verification. This is a non-substantive change, as the actual verification requirements remain the same as in the initial proposal.

T. Modifications to Section 95501. Requirements for Validation and Verification Services.

1. In section 95501(b)(4)(E), staff proposes to clarify that specified source feedstocks in fuel pathways that do not require monitoring and verification of

operational CI must be verified during review of Quarterly Fuel Transactions Reports, to ensure the correct characterization of specified source feedstocks. For example, certain Lookup Table pathways may include specified source feedstocks but are not required to monitor operational CI, so they are not required to contract for third-party validation of their application and are not required to submit annual Fuel Pathway Reports which would otherwise include review of specified source feedstocks.

U. Modifications to Section 95503. Conflict of Interest Requirements for Verification Bodies and Verifiers.

1. In section 95503(b), staff proposes to extend the period for phasing in specified high-risk conflict of interest activitities from January 1, 2023 to August 31, 2023 to allow for completion of verification of 2022 data before requiring rotation of verification bodies. One additional category of services considered high risk for potential conflict of interest would be treated as medium risk until August 31, 2023. Staff's proposal would facilitate smooth implementation of the verification program by providing reporting entities and verifiers more time to plan for a rotation of verification bodies. It also gives CARB staff adequate time to monitor verification program implementation and onboarding of verifiers to determine whether any changes are needed to address concerns of verifier availability.

2. In section 95503(b)(2)(A), staff proposes additional clarifications for for services with high risk of potential conflict of interest by specifically excluding third-party engineering reports provided pursuant to U.S.EPA RFS, which would not require assessment under a risk category.

3. In section 95503(c), staff proposes to to make clear that audit services provided under U.S. EPA RFS (QAP audits, attest engagement services, third-party engineering reports) would be disclosed but would not require assessment under a risk category. In addition staff is proposing to clarify that verifications conducted pursuant to MRR or the Cap-and-Trade Regulation would not require assessment under a risk category as these services are conducted under independence requirements that are similarly rigorous to those proposed under the LCFS verification program.

V. Modifications to Carbon Capture and Sequestration Protocol under the Low Carbon Fuel Standard (CCS Protocol; included in Attachment B to this Notice).

1. <u>Modifications throughout the CCS Protocol</u>

   a. Staff proposes to revise the use of the term "confining layer" to agree with the new storage complex definition and to reflect the possibility that the storage complex may include more than one confining layer.

b. Staff proposes to make modifications to correct typographical, stylistic, or grammatical errors, changes in numbering and formatting, and other non-substantive revisions to improve clarity.

2. Modifications to Definitions (subsection A.3(a))

a. Staff proposes to revise the definitions of "pore space" and "porosity" for clarity.

b. Staff proposes to delete the definition of "area of review" and remove the remaining references to the term throughout the rest of the document, to avoid confusion and improve clarity. "Area of review" is replaced with "the surface projection of the storage complex."

c. Staff proposes to add definitions for "validation" and "verification," to improve clarity.

3. Modifications to subsection Permanence Certification of Geologic Carbon Sequestration Projects (subsection C.1)

a. In subsection C.1.1.1, staff proposes to clarify that the professional geologists and engineers who perform third-party reviews may be licensed by jurisdictions other than California.

b. In subsection C.1.1.3.2(a), staff proposes to modify to the text for clarity and concision.

4. Modification to Site Characterization (subsection C.2)

Subsection C.2.3.1: Formation Testing and Well Logging Program

a. Staff proposes to add a provision to this subsection that allows existing CCS projects to substitute historical data in lieu of the testing and well logging requirements for new projects, provided the data submitted is equivalent.

Subsection C.2.4.1: Computational Modeling Requirements

a. In subsection C.2.4.1(a)(2), staff proposes to add an option for the code(s) used to delineate the storage complex and model the plume extent. The additional option includes a set of requirements that allow operators to use proprietary, commercially available software. New requirements for model code(s) include peer-review, CARB access, and third-party validation.

Subsection C.2.4.3: Corrective Action Requirements

a. In subsection C.2.4.3(b)(1), staff proposes to clarify that operators must use "best available methods and technologies" to identify artificial penetrations through the storage complex in an effort to increase clarity and promote the use of best practices.

b. In subsection C.2.4.3(b), staff proposes to combine subsections (b)(1) and (b)(2) to reduce redundancy.

Subsection C.2.4.4: Plume Reevaluation

a. Staff proposes to change the heading of subsection C.2.4.4 from "Plume Reevaluation" to "Plume Extent Reevaluation" for clarity and to match the heading of subsection C.2.4.4.1.

b. Staff proposes to add a provision to subsection C.2.4.4(b) that requires operators to submit the reevaluated model for third-party review consistent with the new requirements in subsection C.2.4.1(a)(2).

Subsection C.2.4.4.1: Triggers for Plume Extent Reevaluations Prior to the Next Scheduled Reevaluation

a. Staff proposes to modify subsections C.2.4.4.1(c)(1) and (c)(2) to improve technical accuracy and clarity.

5. Modifications to Well Construction and Operating Requirements (subsection C.3)

Subsection C.3.1: Well Construction

a. In subsections C.3.1(c)(1) and (c)(5), staff proposes to add an illustrative example of the type of materials that qualify as "compatible with fluids they will come into contact with" during injection: e.g. corrosion resistant materials.

Subsection C.3.2: Pre-Injection Testing

a. In subsection C.3.2(a)(1), staff proposes to modify the language to clarify that consistent with common practice, data may be collected during both the drilling and construction of wells, not one or the other.

b. In order to clarify subsection C.3.2(c)(1), staff proposes to add language such that deviation checks are required only if pilot holes are drilled as part of the CCS project.

Subsection C.3.3: Injection Well Operating Requirements

a. In subsection C.3.3(b), staff proposes to add language to allow alternative injection pressures, provided the operator justifies the need for alternative pressure, and pending Executive Officer approval.

b. Staff proposes modify subsection C.3.3(f) with language that clarifies that operators must act immediately upon discovery that automatic alarm(s) or automatic shut-off system(s) were triggered that were not immediately remedied.

Subsection C.3.4: Operating Restrictions and Incident Response

a. In subsection C.3.4(a)(3), staff proposes to clarify that operators must cease injection upon discovery that automatic alarm(s) or shut-off system(s) were triggered that were not immediately remedied.

6. Modifications to Testing and Monitoring (subsection C.4)

Subsection C.4.1: Testing and Monitoring

a. In subsection C.4.1(a)(7), staff proposes to allow operators to propose an alternative schedule for external mechanical integrity tests (not to exceed once every five years).

b. In subsection C.4.1(a)(8), staff proposes to remove redundant language to improve clarity.

c. Staff proposes to combine subsections C.4.1(a)(9) and (a)(12) to reduce redundancy.

Subsection C.4.3.1.3: Continuous Monitoring of Injection Pressure

a. Staff proposes to add language to subsection C.4.3.1.3(c) for consistency with modifications to subsection C.3.3(b).

Subsection C.4.3.1.5: Pressure Fall-off Testing

a. In subsection C.4.3.1.5(a), staff proposes to allow alternative test methods and schedules, provided the operator submits a demonstration of the necessity of the method and schedule proposed, and pending Executive Officer approval.

Subsection C.4.3.2.3: Seismicity Monitoring

a. In subsection C.4.3.2.3(a), staff proposes to clarify that the seismic monitoring equipment need not be deployed downhole for each well associated with the CCS project, but that the system must be capable of detecting microseismic activity associated with each well.

b. In subsection C.4.3.2.3(b)(1), staff proposes to allow operators to monitor seismic activity via state seismic networks that are equivalent to California's Integrated Seismic Network.

Subsection C.4.3.2.4: Verification

a. In subsection C.4.3.2.3(b)(2), staff proposes to clarify that the professional geologists and engineers who perform third-party reviews may be licensed by jurisdictions other than California.

7. Modifications to Well Plugging and Abandonment and Post-Injection Site Care and Site Closure (subsection C.5)

a. In subsection C.5.2(b)(3)(A), staff proposes to clarify that wells must be plugged within 24 months after the CCS project enters the post-injection site care period, to accommodate projects that continue operations after injection for CO_2 sequestration ceases.

b. In subsection C.5.2(b)(3)(B), staff proposes to change "determines" to "approves," to allow operators to propose a demonstration of stabilization as part of site closure and site care proceedings.

c. In subsection C.5.2(b)(3)(G), staff proposes to remove overly prescriptive requirements, and to link the post-injection monitoring strategy to the risk assessment required in subsection C.2.2. The modifications also include a list of information and data requirements that the post-injection strategy must meet, at a minimum, to receive Permanence Certification pursuant to subsection C.1.1.3.

Environmental Analysis

These proposed modifications consist primarily of refinements and clarifications to the initial proposal, and do not change the conclusions of the environmental analysis included in the Staff Report. As supported by substantial evidence in the administrative record, CARB has determined that any changes in compliance responses resulting from the modifications do not result in any of the circumstances requiring recirculation of the analysis as set forth in section 15088.5 of the CEQA Guidelines.

Additional Documents or Incorporated Document(s) Added to the Record

Staff has added to the rulemaking record and invites comments on the following additional documents:

Documents Incorporated by Reference

1. Carbon Capture and Sequestration Protocol under the Low Carbon Fuel Standard, August 13, 2018 (included as Attachment B to this Notice at: https://www.arb.ca.gov/regact/2018/lcfs18/lcfs18.htm)
2. California-modified Greenhouse Gases, Regulated Emissions, and Energy use in Transportation version 3.0 (CA-GREET3.0) model, August 13, 2018 (available at: https://www.arb.ca.gov/fuels/lcfs/ca-greet/ca-greet.htm)
3. CA-GREET3.0 Lookup Table Pathways Technical Support Documentation, August 13, 2018 (included in Attachment C to this Notice at: https://www.arb.ca.gov/regact/2018/lcfs18/lcfs18.htm)
4. Tier 1 Simplified CI Calculator Instruction Manual, August 13, 2018 (included in Attachment C to this Notice at: https://www.arb.ca.gov/regact/2018/lcfs18/lcfs18.htm)
5. Tier 1 Simplified CI Calculator for Starch and Fiber Ethanol, August 13, 2018 (available at: https://www.arb.ca.gov/fuels/lcfs/ca-greet/ca-greet.htm)
6. Tier 1 Simplified CI Calculator for Sugarcane-derived Ethanol, August 13, 2018 (available at: https://www.arb.ca.gov/fuels/lcfs/ca-greet/ca-greet.htm)
7. Tier 1 Simplified CI Calculator for Biodiesel and Renewable Diesel, August 13, 2018 (available at: https://www.arb.ca.gov/fuels/lcfs/ca-greet/ca-greet.htm)
8. Tier 1 Simplified CI Calculator for LNG and L-CNG from North American Natural Gas, August 13, 2018 (available at: https://www.arb.ca.gov/fuels/lcfs/ca-greet/ca-greet.htm)
9. Tier 1 Simplified CI Calculator for Biomethane from North American Landfills, August 13, 2018 (available at: https://www.arb.ca.gov/fuels/lcfs/ca-greet/ca-greet.htm)
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Additional References and Supplemental Documents

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2. Public Workshop Materials, August 13, 2018 (included as Attachment D to this Notice at: https://www.arb.ca.gov/regact/2018/lcfs18/lcfs18.htm)
3. Estimating Carbon Intensity Values for the Crude Lookup Table, August 13, 2018 (included as Attachment E to this Notice at: https://www.arb.ca.gov/regact/2018/lcfs18/lcfs18.htm)
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These documents are available for inspection by contacting Bradley Bechtold, Regulations Coordinator, at (916) 322-6533.

Agency Contacts

Inquiries concerning the substance of the proposed regulation may be directed to the agency representative Sam Wade, Branch Chief, Transportation Fuels Branch, Industrial Strategies Division, at (916) 322-8263, or Anthy Alexiades, Air Resources Engineer, Alternative Fuels Section, at (916) 324-0368.

Public Comments

Written comments will only be accepted on the modifications identified in this Notice. Comments may be submitted by postal mail or by electronic submittal no later than 5:00 p.m. on the due date to the following:

Postal mail: Clerk of the Board, California Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

Please note that under the California Public Records Act (Gov. Code § 6250 et seq.), your written and verbal comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

In order to be considered by the Executive Officer, comments must be directed to CARB in one of the two forms described above and received by CARB by 5:00 p.m., on the deadline date for public comment listed at the beginning of this notice. Only comments relating to the modifications to the text of the regulations in attachments to this notice shall be considered by the Executive Officer.

If you need this document in an alternate format or another language, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 no later than five (5) business days from the release date of this notice. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Si necesita este documento en un formato alterno u otro idioma, por favor llame a la oficina del Secretario del Consejo de Recursos Atmosféricos al (916) 322-5594 o envíe un fax al (916) 322-3928 no menos de cinco (5) días laborales a partir de la fecha del lanzamiento de este aviso. Para el Servicio Telefónico de California para Personas con Problemas Auditivos, ó de teléfonos TDD pueden marcar al 711.

CALIFORNIA AIR RESOURCES BOARD

Richard W. Corey
Executive Officer

Date: August 13, 2018

Attachments

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see CARB's website at www.CARB.ca.gov.