LEGAL DISCLAIMER & USER'S NOTICE

Unofficial electronic version of the Low Carbon Fuel Standard Regulation

Unofficial Electronic Version

This unofficial electronic version of the Low Carbon Fuel Standard Regulation following this Disclaimer was produced by California Air Resources Board (CARB) staff for the reader's convenience. CARB staff has removed the underline-strikeout formatting which exists in the Final Regulation Order approved by the Office of Administrative Law (OAL) on January 4, 2019 and included the full regulatory text for the Regulation; however, the following version is not an official legal edition of title 17, California Code of Regulations (CCR), sections 95480-95503. The effective date of this regulation is January 4, 2019. While reasonable steps have been taken to make this unofficial version accurate, the officially published CCR takes precedence if there are any discrepancies.

Official Legal Edition

The official legal edition of title 17, CCR, sections 95480-95503 is available at the OAL website: http://oal.ca.gov/publications/ccr/

Online California Code of Regulations:
http://ccr.oal.ca.gov/linkedslice/default.asp?SP=CCR-1000&Action=Welcome

→ "Title 17. Public Health"

→ "Division 3. Air Resources"

→ "Chapter 1. Air Resources Board"

→ "Subchapter 10. Climate Change"

→ "Subchapter 10. Climate Change"

→ "Article 4. Regulations to Achieve Greenhouse Gas Emission Reductions"

→ Subarticle 7. Low Carbon Fuel Standard

LOW CARBON FUEL STANDARD

TABLE OF CONTENTS

95480. Purpose 1
95481. Definitions and Acronyms. 1
95482. Fuels Subject to Regulation. 23
95483. Fuel Reporting Entities. 26
95483.1. Opt-In Entities. 34
95483.2. LCFS Data Management System. 37
95483.3. Change of Ownership or Operational Control. 46
95484. Annual Carbon Intensity Benchmarks. 47
95485. Demonstrating Compliance. 51
95486. Generating and Calculating Credits and Deficits. 57
95486.1. Generating and Calculating Credits and Deficits Using Fuel Pathways. 62
95486.2. Generating and Calculating Credits for ZEV Fueling Infrastructure Pathways. 68
95487. Credit Transactions. 85
95488. Entities Eligible to Apply for Fuel Pathways. 91
95488.1. Fuel Pathway Classifications. 92
95488.2. Relationship Between Pathway Registration and Facility Registration. 94
95488.3. Calculation of Fuel Pathway Carbon Intensities. 97
95488.4. Relationship of Pathway Carbon Intensities to Units of Fuel Sold in California. 99
95488.5. Lookup Table Fuel Pathway Application Requirements and Certification Process. 101
95488.6. Tier 1 Fuel Pathway Application Requirements and Certification Process. 106
95488.7. Tier 2 Fuel Pathway Application Requirements and Certification Process. 109
95488.8. Fuel Pathway Application Requirements Applying to All Classifications. 118
95488.9. Special Circumstances for Fuel Pathway Applications. 127
95488.10. Maintaining Fuel Pathways. 134

95489. Provisions for Petroleum-Based Fuels. 136
95490. Provisions for Fuels Produced Using Carbon Capture and Sequestration. 175
95491. Fuel Transactions and Compliance Reporting. 180
95491.1. Recordkeeping and Auditing. 195
95492. Enforcement Protocols. 202
95493. Jurisdiction. 203
95494. Violations. 203
95495. Authority to Suspend, Revoke, Modify, or Invalidate. 204
95496. [Reserved]. 207
95497. Severability. 207
95498. [Reserved]. 207
95499. [Reserved]. 207
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. 207
95501. Requirements for Validation and Verification Services. 213
95502. Accreditation Requirements for Verification Bodies, Lead Verifiers, and Verifiers. 231
95503. Conflict of Interest Requirements for Verification Bodies and Verifiers 236

LIST OF TABLES

Table 1: LCFS Carbon Intensity Benchmarks for 2011 to 2030 for Gasoline and Fuels Used as a Substitute for Gasoline. 48
Table 2: LCFS Carbon Intensity Benchmarks for 2011 to 2030 for Diesel Fuel and Fuels Used as a Substitute for Diesel Fuel. 49
Table 3: LCFS Carbon Intensity Benchmarks for 2019 to 2030 for Fuels Used as a Substitute for Conventional Jet Fuel. 49
Table 4: Energy Densities and Conversion Factors for LCFS Fuels and Blendstocks. 61
Table 5: EER Values for Fuels Used in Light- and Medium-Duty, and Heavy-Duty Applications. 64

Table 6: Land Use Change Values for Use in CI Determination 98
Table 7-1: Lookup Table for Gasoline and Diesel and Fuels that Substitute for Gasoline and Diesel 104
Table 7-2: Calculated Smart Charging or Smart Electrolysis Carbon Intensity Values for 2019 105
Table 8: Temporary Pathways for Fuels with Indeterminate CIs 129
Table 9: Carbon Intensity Lookup Table for Crude Oil Production and Transport.. 139
Table 10: Nelson Complexity Indices. 161
Table 11: Summary Checklist of Quarterly and Annual Reporting Requirements.... 193
Table 12: Annual Compliance Calendar. 194

FINAL REGULATION ORDER

Amend sections 95481, 95482, 95483, 95483.1, 95484, 95485, 95486, 95487, 95489, 95491, 95492, 95493, 95494, and 95495;

Adopt sections 95483.2, 95483.3, 95486.1, 95486.2, 95488, 95488.1, 95488.2, 95488.3, 95488.4, 95488.5, 95488.6, 95488.7, 95488.8, 95488.9, 95488.10, 95490, 95491.1, 95500, 95501, 95502, and 95503; and

Repeal sections 95483.2, 95488, and 95496 title 17, California Code of Regulations, to read as follows:

Subchapter 10. Climate Change
Article 4. Regulations to Achieve Greenhouse Gas Emission Reductions

Subarticle 7. Low Carbon Fuel Standard

§ 95480. Purpose.

The purpose of this regulation is to implement a low carbon fuel standard, which will reduce the full fuel-cycle, carbon intensity of the transportation fuel pool used in California, pursuant to the California Global Warming Solutions Act of 2006 (Health & Safety Code [H&S], section 38500 et seq.).

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95481. Definitions and Acronyms.

(a) *Definitions.* For the purposes of sections 95480 through 95503, the definitions in Health and Safety Code sections 39010 through 39060 shall apply, except as otherwise specified in this section or sections 95482 through 95503:

(1) "Account Administrator" means the person who can establish and activate user accounts for the reporting party organization as well as upload data (but not necessarily "submit" reports) into the LRT-CBTS. Account administrators with "signatory authority" may submit Quarterly and Annual Reports; initiate and view all credit transfers and credit transfer activity; access the Credit Balance ledger for the organization; and select/authorize broker(s) to represent them.

(2) "Adverse Validation Statement" and "Adverse Verification Statement" means a statement rendered by a verification body attesting that: (1) the verification body cannot say, with reasonable assurance, that the reported value is free of a material misstatement, or (2) the data submitted contain one or more correctable errors, or (3) both, and thus is not in conformance with the requirement to fix such errors pursuant to section 95501(b)(6). This definition applies to Adverse Validation Statements for fuel pathway applications and Adverse Verification Statements for Annual Fuel Pathway Reports, Quarterly Fuel Transactions Reports, Crude Oil Quarterly and Annual Volumes Reports, Low-Complexity/Low-Energy-Use Refinery Reports, and Project Reports. "Material misstatement" for each type of report is assessed pursuant to sections 95501(b)(9) through (11).

(3) "AEZ-EF Model" means the Agro-Ecological Zone Emissions Factor model (December 31, 2014), posted at http://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/lcfs_meetings.htm and available for download at http://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/aez-ef_model_v52.xlsm, which is incorporated herein by reference.

(4) "Aggregated Transaction Indicator" means an identifier for reported transactions that are a result of an aggregation or summing of more than one transaction in the LRT-CBTS. An entry of 'True' indicates that multiple transactions have been aggregated and are reported with a single Transaction Number. An entry of 'False' means that the transaction record results from one fuel transaction reported as a single Transaction Number.

(5) "Alternative Fuel" means any transportation fuel that is not CaRFG or a diesel fuel, including those fuels specified in section 95482(a)(3) through (a)(13).

(6) "Alternative Jet Fuel" means a drop-in fuel, made from petroleum or non-petroleum sources, which can be blended and used with conventional petroleum jet fuels without the need to modify aircraft engines and existing fuel distribution infrastructure.

(7) "Animal Fat" means the inedible fat that originates from a rendering facility as a product of rendering the by-products from meat processing facilities including animal parts, fat and bone. "Yellow grease" must be reported under an applicable animal fat pathway if evidence is not provided to the verifier or CARB to confirm the quantity that is animal fat and the quantity that is used cooking oil.

(8) "Application" means the type of vehicle where the fuel is consumed in terms of LDV/MDV for light-duty vehicle/medium-duty vehicle or HDV for heavy-duty vehicle.

(9) "Aviation Gasoline" means a complex mixture of volatile hydrocarbons, with or without additives, suitably blended to be used in aviation engines.

(10) "Avoided Cost Calculator" means the Excel-based spreadsheet model (May 2018) produced by Energy and Environmental Economics, Inc. (E3) for use in demand-side cost-effectiveness proceedings at the California Public Utilities Commission (CPUC), which is incorporated herein by reference, and is available for download at http://www.cpuc.ca.gov/General.aspx?id=5267.

(11) "Battery Electric Vehicle (BEV)" means any vehicle that operates solely by use of a battery or battery pack, or that is powered primarily through the use of an electric battery or battery pack but uses a flywheel or capacitor that stores energy produced by the electric motor or through regenerative braking to assist in vehicle operation.

(12) "Biodiesel" means a fuel as defined in California Code of Regulations, title 4, section 4140(a).

(13) "Biodiesel Blend" means biodiesel blended with CARB diesel.

(14) "Biogas" means the raw gaseous mixture comprised primarily of methane and carbon dioxide and derived from sources, including but not limited to, the anaerobic decomposition of organic matter in a landfill, lagoon, or constructed reactor (digester). Biogas often contains a number of other impurities, such as hydrogen sulfide, and it cannot be directly injected into natural gas pipelines or combusted in most natural-gas-fueled vehicles. It can be used as a fuel in boilers and engines to produce electrical power. The biogas can be refined to produce near-pure methane, which is sold as biomethane.

(15) "Bio-CNG" means biomethane which has been compressed to CNG. Bio-CNG has equivalent performance characteristics when compared to fossil CNG.

(16) "Bio-LNG" means biomethane which has been compressed and liquefied into LNG. Bio-LNG has equivalent performance characteristics when compared to fossil LNG.

(17) "Bio-L-CNG" means biomethane which has been compressed, liquefied, re-gasified, and re-compressed into L-CNG, and has performance characteristics at least equivalent to fossil L-CNG.

(18) "Biomass" means non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms, including: products, by-products, residues and waste from agriculture, forestry, and related industries; the non-fossilized and biodegradable organic fractions of industrial and municipal wastes; and gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material.

(19) "Biomass-based Diesel" means a biodiesel or a renewable diesel.

(20) "Biomethane" means methane derived from biogas, or synthetic natural gas derived from renewable resources, including the organic portion of municipal solid waste, which has been upgraded to meet standards for injection to a natural gas common carrier pipeline, or for use in natural gas vehicles, natural gas equipment, or production of renewable hydrogen. Biomethane contains all of the environmental attributes associated with biogas and can also be referred to as renewable natural gas.

(21) "Blendstock" means a component that is either used alone or is blended with another component(s) to produce a finished fuel used in a motor vehicle. Each blendstock corresponds to a fuel pathway in the California-modified Greenhouse Gases, Regulated Emissions, and Energy use in Transportation version 3.0 (CA-GREET3.0) model, (August 13, 2018), which is incorporated herein by reference. A blendstock that is used directly as a transportation fuel in a vehicle is considered a finished fuel.

(22) "Brown Grease" means an emulsion of fat, oil, grease, solids, and water separated from wastewater in a grease interceptor (grease trap) and collected for use as a fuel feedstock. Brown grease must be reported under an applicable used cooking oil (UCO) pathway, i.e., reported as "unprocessed UCO" only if evidence is provided to the verifier or CARB to confirm that it has not been processed prior to receipt by the fuel production facility.

(23) "Business Partner" refers to the counterparty in a specific transaction involving the fuel reporting entity. This can be either the buyer or the seller of fuel.

(24) "Carbon Intensity (CI)" means the quantity of life cycle greenhouse gas emissions, per unit of fuel energy, expressed in grams of carbon dioxide equivalent per megajoule (gCO_2e/MJ).

(25) "Cargo Handling Equipment" means any off-road, self-propelled vehicle or equipment, other than yard trucks, used at a port or intermodal rail yard to

lift or move container, bulk, or liquid cargo carried by ship, train, or another vehicle, or used to perform maintenance and repair activities that are routinely scheduled or that are due to predictable process upsets. Equipment includes, but is not limited to, rubber-tired gantry cranes, top handlers, side handlers, reach stackers, loaders, aerial lifts, excavators, tractors, and dozers.

(26) "CHAdeMO Connector" means a connector and communication protocol for vehicle DC charging initially developed in Japan during 2005-2009. It was first adopted into international standards IEC 61851-23/24 and IEC 62196-3 in 2014 and then into USA standard IEEE 2030.1.1 in 2015. Further updates to the protocol are managed by the CHAdeMO Association.

(27) "Compressed Natural Gas (CNG)" means natural gas that has been compressed to a pressure greater than ambient pressure.

(28) "Conflict of Interest" means a situation in which, because of financial or other activities or relationships with other persons or organizations, a person or body is unable, or potentially unable, to render an impartial validation or verification statement on a potential client's LCFS data report, or the person or body's objectivity in performing validation or verification services is, or might be, otherwise compromised.

(29) "Contract Description Code" means the alphanumeric code assigned by an exchange to a particular exchange product that differentiates the product from others traded on the exchange.

(30) "Conventional Jet Fuel" means aviation turbine fuel including Commercial and Military Jet Fuel. Commercial Jet Fuel includes products known as Jet A, Jet A-1, and Jet B. Military Jet Fuel includes products known as JP-5 and JP-8.

(31) "Correctable Errors" means one or more errors that result from a nonconformance with this subarticle and are identified by the verification team as errors that affect data subject to validation or verification as specified in section 95500. Differences that, in the professional judgment of the verification team, are the result of differing but reasonable methods of truncation or rounding or averaging, where a specific procedure is not prescribed by this subarticle, are not considered errors.

(32) "Credit Generator" means a fuel reporting entity or a project operator that generates LCFS credit in the LCFS program.

(33) "Credits" and "Deficits" mean the units of measure used for determining a regulated entity's compliance with the average carbon intensity

requirements in section 95484. Credits and deficits are denominated in units of metric tons of carbon dioxide equivalent (CO_2e), and are calculated pursuant to sections 95486.1(a), (c), 95486.2(a)(5) and (b)(5), 95489 and 95490.

(34) "Day" means a calendar day unless otherwise specified as a business day.

(35) "Deficit Generator" means a fuel reporting entity who generates deficits in the LCFS program.

(36) "Diesel Fuel" (also called conventional diesel fuel) has the same meaning as specified in California Code of Regulations, title 13, section 2281(b).

(37) "Direct Current Fast Charging" means charging an electric vehicle at 50 kW and higher using direct current.

(38) "Distiller's Corn Oil" has the same meaning as "Technical Corn Oil."

(39) "Distiller's Sorghum Oil" has the same meaning as "Technical Sorghum Oil."

(40) "E100," also known as "Denatured Fuel Ethanol," means nominally anhydrous ethyl alcohol.

(41) "Electrical Distribution Utility" means an entity that owns or operates an electrical distribution system, including:

(A) a public utility as defined in the Public Utilities Code section 216 (referred to as an Investor Owned Utility, or IOU); or

(B) a local publicly-owned electric utility (POU) as defined in Public Utilities Code section 224.3;

1. "Large Publicly-owned Utility" means a California POU with annual load served equal to or more than 10,000 Gigawatt-hours (GWh) in 2017;
2. "Medium Publicly-owned Utility" means a California POU with annual load served of less than 10,000 GWh and equal to or more than 700 GWh in 2017;
3. "Small Publicly-owned Utility" means a California POU with annual load served of less than 700 GWh in 2017.

or

(C) an Electrical Cooperative (COOP) as defined in Public Utilities Code section 2776.

(42) "Electric Cargo Handling Equipment (eCHE)" means cargo handling equipment using electricity as the fuel.

(43) "Electric Power for Ocean-going Vessel (eOGV)" means shore power provided to an ocean going vessel at-berth.

(44) "Electric Transport Refrigeration Units (eTRU)" means refrigeration systems powered by electricity designed to refrigerate or heat perishable products that are transported in various containers, including semi-trailers, truck vans, shipping containers, and rail cars.

(45) "Electric Vehicle (EV)," for purposes of this regulation, refers to Battery Electric Vehicles (BEVs) and Plug-In Hybrid Electric Vehicles (PHEVs).

(46) "Energy Economy Ratio (EER)" means the dimensionless value that represents the efficiency of a fuel as used in a powertrain as compared to a reference fuel used in the same powertrain. EERs are often a comparison of miles per gasoline gallon equivalent (mpge) between two fuels. EERs for fixed guideway systems are based on MJ/number of passenger-miles.

(47) "Environmental Attribute" means greenhouse gas emission reduction recognition in any form, including verified emission reductions, voluntary emission reductions, offsets, allowances, credits, avoided compliance costs, emission rights and authorizations under any law or regulation, or any emission reduction registry, trading system, or reporting or reduction program for greenhouse gas emissions that is established, certified, maintained, or recognized by any international, governmental, or non-governmental agency.

(48) "Executive Officer" means the Executive Officer of the California Air Resources Board, or his or her delegate.

(49) "Exchange" means a central marketplace with established rules and regulations where buyers and sellers meet to conduct trades.

(50) "Export" means transportation fuel reported in the LRT-CBTS program that is subsequently delivered outside of California and not used for transportation in California.

(51) "Feedstock First Collection Point" means the facility that aggregates and stores or treats feedstock materials collected from a point of origin. The first collection point may be upstream of the fuel production facility, or, if feedstocks are transported to the fuel production facility directly from the point of origin, the first collection point is the fuel production facility.

(52) "Feedstock Transport Mode" means the applicable combination of actual delivery methods and the distance through which the feedstock was transported to any intermediate entities and ending at a fuel production facility. The fuel pathway holder and any entity reporting the fuel must demonstrate that the actual feedstock transport mode and distance conforms to the stated mode and distance in the certified pathway.

(53) "Final Distribution Facility" means the stationary finished fuel transfer point from which the finished fuel is transferred into the cargo tank truck, pipeline, or other delivery vessel for delivery to the facility at which the finished fuel will be dispensed into motor vehicles.

(54) "Finished Fuel" means a fuel that is used directly in a vehicle for transportation purposes without requiring additional chemical or physical processing.

(55) "First Fuel Reporting Entity" means the first entity responsible for reporting in the LRT-CBTS for a given amount of fuel. This entity initially holds the status as the fuel reporting entity and the credit or deficit generator for this fuel amount, but may transfer either status pursuant to sections 95483 or 95483.1.

(56) "Fish Oil" means the fat that originates from fish processing operations as a product of rendering fat from residual fish parts.

(57) "Fixed Guideway System" means a system of public transit electric vehicles that can operate only on its own guideway (directly operated, or DO), or through overhead or underground electricity supply constructed specifically for that purpose, such as light rail, heavy rail, cable car, street car, and trolley bus.

(58) "Fossil CNG" means CNG that is derived solely from petroleum or fossil sources, such as oil fields and coal beds.

(59) "Fossil LNG" means LNG that is derived solely from petroleum or fossil sources, such as oil fields and coal beds.

(60) "Fossil L-CNG" means L-CNG that is derived solely from petroleum or fossil sources, such as oil fields and coal beds.

(61) "Fuel Pathway" means, for a particular finished fuel, the collective set of processes, operations, parameters, conditions, locations, and technologies throughout all stages that CARB considers appropriate to account for in the system boundary of a complete well-to-wheel analysis of that fuel's life cycle greenhouse gas emissions.

(62) "Fuel Pathway Applicant" refers to an entity that has registered in the Alternative Fuel Portal pursuant to section 95483.2 and has submitted an application including all required documents and attestations in support of the application requesting a certified fuel pathway.

(63) "Fuel Pathway Code" means the identifier in the LRT-CBTS that applies to a specific fuel pathway certified pursuant to sections 95488 through 95488.10.

(64) "Fuel Pathway Holder" means a fuel pathway applicant that has received a certified fuel pathway carbon intensity based on site-specific data, including a Provisional fuel pathway.

(65) "Fuel Production Facility" means the facility at which the fuel is produced. "Fuel Production facility" means, with respect to biomethane to vehicle fuel pathways, a facility at which fuel is upgraded, purified, or processed to meet standards for injection to a natural gas common carrier pipeline or for use in natural gas vehicles.

(66) "Fuel Reporting Entity" means an entity that is required to report fuel transactions in the LRT-CBTS pursuant to section 95483 or 95483.1. Fuel reporting entity refers to the first fuel reporting entity and to any entity to whom the reporting entity status is passed for a given quantity of fuel.

(67) "Fuel Transport Mode" means the applicable combination of actual fuel delivery methods, such as truck routes, rail lines, pipelines, and any other fuel distribution methods, and the distance through which the fuel was transported under contract from the entity that generated or produced the fuel, to any intermediate entities, and ending at the fuel blender, producer, importer, or provider in California. The fuel pathway holder and any entity reporting the fuel must demonstrate that the actual fuel transport mode and distance conforms to the stated mode and distance in the certified pathway.

(68) "Green Tariff" means a program in which a retail seller of electricity offers its customers an opportunity to purchase electricity sourced from low-carbon intensity energy resources. This includes the Green Tariff Shared Renewables program established pursuant to California Senate Bill 43 (2013) and defined under the California Public Utilities Code sections 2831-2833.

(69) "GTAP" or "GTAP Model" means the Global Trade Analysis Project Model (December 2014), which is incorporated herein by reference, and is a software available for download at https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=4577.

(70) "Heavy-Duty Vehicle" means a vehicle that is rated at or greater than 14,001 pounds gross vehicle weight rating (GVWR).

(71) "Home Fueling" means the dispensing of fuel by use of a fueling appliance that is located on or within a residential property with access limited to a single household.

(72) "Hybrid Electric Vehicle (HEV)" means any vehicle that can draw propulsion energy from both of the following on-vehicle sources of stored energy: 1) a consumable fuel, and 2) an energy storage device, such as a battery, capacitor, or flywheel.

(73) "Hydrogen Station Capacity Evaluator" or "HySCapE" means a tool developed by the National Renewable Energy Laboratory to determine the dispensing capacity of a hydrogen station, HySCapE Version 1.0 (August 13, 2018), which is incorporated herein by reference and available at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm.

(74) "Import" means to bring a product from outside California into California.

(75) "Importer" means the person who owns the transportation fuel or blendstock, in the transportation equipment that held or carried the product, at the point the fuel entered California. For purposes of this definition, "transportation equipment" includes, but is not limited to, rail cars, cargo tanker trucks, and pipelines.

(76) "Independent Reviewer" means an accredited lead verifier, within a verification body, who (A) has not participated in conducting the LCFS validation or verification services for the client for the current application period or reporting period, and (B) provides an independent review of findings and services rendered to the client as required in section 95501. The independent reviewer is not required to meet the additional specified competency requirements in sections 95502(c)(4) and 95502(c)(5) that the verification team leader must meet.

(77) "Ineligible Specified Source Feedstock" means a feedstock specified in section 95488.8(g)(1)(A) that does not meet the chain-of-custody documentation requirements specified in section 95488.8(g)(1)(B).

(78) "Intermediate Calculated Value" means a value that is used in the calculation of a reported value but does not by itself meet the reporting requirement under section 95491.

(79) "Intermediate Facility" means a facility in a fuel supply chain, which is not the fuel production facility, that contributes site-specific data for determination of a fuel pathway carbon intensity. Intermediate facilities produce components of a fuel or intermediate chemical that may be further processed into a fuel. This term includes feedstock-processing facilities.

(80) "LCFS Credit Broker" is a person registered in the LRT-CBTS specifically to facilitate the transfer of LCFS credits between LRT-CBTS accounts.

(81) "Lead Verifier" means a person who has met all the requirements in section 95502 and who may act as either (A) the lead verifier of a verification team providing validation or verification services, or (B) as a lead verifier providing an independent review of validation or verification services rendered.

(82) "Life Cycle Greenhouse Gas Emissions" means the aggregate quantity of greenhouse gas emissions (including direct emissions and significant indirect emissions, such as significant emissions from land use changes), as determined by the Executive Officer, related to the full fuel life cycle, including all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer, where the mass values for all greenhouse gases are adjusted to account for their relative global warming potential.

(83) "Light-Duty Vehicle" and "Medium-Duty Vehicle" mean a vehicle category that includes both light-duty (LDV) and medium-duty vehicles (MDV).

(A) "LDV" means a vehicle that is rated at 8,500 pounds or less GVWR.
(B) "MDV" means a vehicle that is rated between 8,501 and 14,000 pounds GVWR.

(84) "Liquefied Compressed Natural Gas (L-CNG)" means LNG that has been liquefied and transported to a dispensing station where it was then re-gasified and compressed to a pressure greater than ambient pressure.

(85) "Liquefied Natural Gas (LNG)" means natural gas that has been liquefied.

(86) "Liquefied petroleum gas (LPG or propane)" has the same meaning as defined in Vehicle Code section 380.

(87) "Load-Serving Entity" means any entity that (A) sells or provides electricity to end users located in California, or (B) generates electricity at one site and consumes electricity at another site that is in California and that is owned or controlled by the company. A load-serving entity does not include the owner or operator of a co-generator.

(88) "Low-Carbon Intensity (Low-CI) Electricity" means any electricity that is determined to have a carbon intensity that is less than the average grid electricity for the region, including but not limited to an "eligible renewable energy resource" as defined in Public Utilities Code sections 399.11-399.36 under the California Renewables Portfolio Standard Program.

(89) "Low-Complexity/Low-Energy-Use Refinery" means a refinery that meets both of the following criteria:

(A) A Modified Nelson Complexity Score equal to or less than 5 as calculated in section 95489(d)(1)(A).
(B) Total annual energy use equal to or less than 5 million MMBtu as calculated in section 95489(d)(1)(B).

(90) "Mandatory Reporting Regulation" or "MRR" means CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions as set forth in title 17, California Code of Regulations, chapter 1, subchapter 10, article 2 (commencing with section 95100).

(91) "Material Misstatement of Operational Carbon Intensity" means any discrepancy, omission, or misreporting, or aggregation of the three, identified in the course of verification services that leads a verification team to believe that the reported operational CI (gCO_2e/MJ) contains one or more errors that, individually or collectively, result in an overstatement or understatement more than 5 percent of the reported operational CI, or 2 gCO_2e/MJ, whichever absolute value expressed in gCO_2e/MJ is greater. Material misstatement is calculated separately for each operational CI. All correctable errors identified must be fixed prior to the completion of the verification services to receive a positive or qualified positive verification statement.

(92) "Material Misstatement of Low-Complexity/Low-Energy-Use (LC/LEU) Refinery Data" means any discrepancy, omission, or misreporting, or aggregation of the three, identified in the course of LC/LEU refinery report verification services that leads a verification team to believe that a LC/LEU Refinery Report contains one or more errors that, individually or collectively, result in an overstatement greater than 5 percent of the regulated entity's annual sum of quarterly reported volumes of CARBOB or diesel produced from crude oil. Discrepancies, omissions, or misreporting, or an aggregation of the three, that result in an

understatement of the annual sum of quarterly reported volumes of CARBOB or diesel produced from crude oil submitted in the LC/LEU Refinery Report is not a LC/LEU refinery data material misstatement. Material misstatement is calculated separately, pursuant to section 95501(b)(11), for the annual volume of CARBOB production from crude oil and for the annual volume of diesel production from crude oil. All correctable errors identified must be fixed prior to the completion of the verification services to receive a positive or qualified positive verification statement.

(93) "Material Misstatement of Project Data" means a discrepancy, omission, misreporting, or aggregation of the three, identified in the course of project verification services that leads a verification team to believe that a Project Report contains one or more errors that, individually or collectively, result in an overstatement greater than 5 percent of the regulated entity's reported total greenhouse gas emission reductions. Discrepancies, omissions, or misreporting, or an aggregation of the three, which result in an understatement of total reported greenhouse gas emission reductions in the Project Report, is not a project material misstatement. Material misstatement is calculated separately, pursuant to section 95501(b)(10), for each Project Report. All correctable errors identified must be fixed prior to the completion of the verification services to receive a positive or qualified positive verification statement.

(94) "Material Misstatement of Quarterly Fuel Quantity" means any discrepancy, omission, or misreporting, or aggregation of the three, identified in the course of validation or verification services that leads a verification team to believe that the regulated entity's reported fuel quantity per fuel pathway code per quarter contains one or more errors that, individually or collectively, result in an overstatement or understatement greater than 5 percent. Material misstatement is calculated separately, pursuant to section 95501(b)(9), for each quarterly fuel quantity per fuel pathway code. All correctable errors identified must be fixed prior to the completion of the verification services to receive a positive or qualified positive verification statement.

(95) "Modified Nelson Complexity Score" means a Nelson Complexity Score that is calculated without including lube oil and asphalt capacity, as set forth in section 95489(d)(1)(A).

(96) "Motor Vehicle" has the same meaning as defined in section 415 of the Vehicle Code.

(97) "Multi-fuel Vehicle" means a vehicle that uses two or more distinct fuels for its operation. A multi-fuel vehicle (also called a vehicle operating in blended-mode) includes a bi-fuel vehicle and can have two or more fueling

ports onboard the vehicle. A fueling port can be an electrical plug or a receptacle for liquid or gaseous fuel. For example, most plug-in hybrid electric vehicles use both electricity and gasoline as the fuel source and can be "refueled" using two separately distinct fueling ports.

(98) "Multi-family Residence" means a dwelling unit in a building that consists of at least four condominium dwelling units or at least three apartment dwelling units in which each unit shares a floor or ceiling on at least one side.

(99) "Natural Gas" means a mixture of gaseous hydrocarbons and other compounds, with at least 80 percent methane (by volume), and typically sold or distributed by utilities, such as any utility company regulated by the California Public Utilities Commission.

(100) "Nelson Complexity Score" means the commonly used industry measure of a refinery's ability to convert crude oils to finished fuels, taking into consideration the complexity of the technologies incorporated within the process and related capacities as compared to crude distillation.

(101) "Nonconformance" means the failure to use any method or meet any other requirement specified in this subarticle.

(102) "Ocean-Going Vessel" means a commercial, government, or military vessel meeting any one of the following criteria:

(A) A vessel greater than or equal to 400 feet in length overall (LOA) as defined in 50 Code of Federal Regulations (CFR) § 679.2, as adopted June 19, 1996;

(B) A vessel greater than or equal to 10,000 gross tons (GT ITC) pursuant to the convention measurement (international system) as defined in 46 CFR § 69.51-.61, as adopted September 12, 1989;

(C) A vessel propelled by a marine compression ignition engine with a per-cylinder displacement of greater than or equal to 30 liters.

(103) "On-road" means a vehicle that is designed to be driven on public highways and roadways and that is registered or is capable of being registered by the California Department of Motor Vehicles (DMV) under Vehicle Code sections 4000 et seq. – or DMV's equivalent in another state, province, or country; or the International Registration Plan. A vehicle covered under CARB's In-Use Off-Road Regulation, Code of Regulations, title 13, section 2449, is not covered under this definition.

(104) "OPGEE" or "OPGEE Model" means the Oil Production Greenhouse gas Emissions Estimator Version 2.0 (June 20, 2018) posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm, which is incorporated herein by reference.

(105) "Opt-in Fuel Reporting Entity" means an entity that meets the requirements of section 95483.1 and voluntarily opts in to be a fuel reporting entity and is therefore subject to the requirements set forth in this subarticle.

(106) "Opt-in Project" means a project approved for generating LCFS credits by the Executive Officer pursuant to sections 95489 or 95490.

(107) "Over-the-Counter" means the trading of LCFS credits or contracts not executed or entered for clearing on any exchange.

(108) "Performance Review" means an assessment conducted by CARB of an applicant seeking to become accredited or reaccredited as a verification body or lead verifier pursuant to section 95502 of this subarticle. Such an assessment may include a review of applicable past sampling plans, validation and verification reports, validation and verification statements, conflict of interest submittals, and additional information or documentation regarding the applicant's fitness for qualification.

(109) "Petroleum Intermediate" means a petroleum product that can be further processed to produce CARBOB, diesel, or other petroleum blendstocks.

(110) "Petroleum Product" means all refined and semi-refined products that are produced at a refinery by processing crude oil and other petroleum-based feedstocks, including petroleum products derived from co-processing biomass and petroleum feedstock together. "Petroleum product" does not include plastics or plastic products.

(111) "Plug-In Hybrid Electric Vehicle (PHEV)" means a hybrid electric vehicle with the capability to charge a battery from an off-vehicle electric energy source that cannot be connected or coupled to the vehicle in any manner while the vehicle is being driven.

(112) "Positive Validation Statement" and "Positive Verification Statement" means a statement rendered by a verification body attesting that the verification body can say, with reasonable assurance, that the reported value is free of material misstatement, when applicable, and conforms to the requirements of this subarticle. This definition applies to Positive Validation Statements for fuel pathway applications and Positive Verification Statements for Annual Fuel Pathway Reports, Quarterly Fuel

Transactions Reports, Crude Oil Quarterly and Annual Volumes Reports, Low-Complexity/Low-Energy-Use Refinery Reports, and Project Reports.

(113) "Private Access Fueling Facility" means a fueling facility with access restricted to privately-distributed electronic cards ("cardlock") or is located in a secure area not accessible to the public.

(114) "Producer" means, with respect to any fuel, the entity that made or prepared the fuel.

(115) "Product Transfer Document (PTD)" means a document that authenticates the transfer of ownership of fuel from a fuel reporting entity to the recipient of the fuel. A PTD is created by a fuel reporting entity to contain information collectively supplied by other fuel transaction documents, including bills of lading, invoices, contracts, meter tickets, rail inventory sheets, Renewable Fuels Standard (RFS) product transfer documents, etc.

(116) "Project Operator" means an entity that registers an opt-in project in the Alternative Fuel Portal and has it approved for generating LCFS credits. A project operator must meet the requirements of sections 95483.1 and 95489 or 95490.

(117) "Public Access Fueling Facility" means a fueling facility that is not a private-access fueling dispenser.

(118) "Qualified Positive Validation Statement" and "Qualified Positive Verification Statement" means a statement rendered by a verification body attesting that the verification body can say, with reasonable assurance, that the reported value is free of material misstatement, when applicable, and is in conformance with the requirement to fix correctable errors pursuant to section 95501(b)(6), but the data may include one or more other nonconformance(s) with the requirements of this subarticle, which do not result in a material misstatement. This definition applies to Qualified Positive Validation Statements for fuel pathway applications and Qualified Positive Verification Statements for Annual Fuel Pathway Reports, Quarterly Fuel Transactions Reports, Crude Oil Quarterly and Annual Volumes Reports, Low-Complexity/Low-Energy-Use Refinery Reports, and Project Reports.

(119) "Rack" means a mechanism for delivering motor vehicle fuel or diesel from a refinery or terminal into a truck, trailer, railroad car, or other means of non-bulk transfer.

(120) "Reasonable Assurance" means a high degree of confidence that submitted data and statements are valid.

(121) "Regulated Entity" means an entity subject to any requirement pursuant to this subarticle.

(122) "Renewable Fuel Standard" means the program administered by the United States Environmental Protection Agency, under 40 CFR Part 80: Regulation of Fuels and Fuel Additives, Subparts K and M.

(123) "Renewable Hydrocarbon Diesel" means a diesel fuel that is produced from non-petroleum renewable resources but is not a mono-alkyl ester and which is registered as a motor vehicle fuel or fuel additive under 40 Code of Federal Regulations part 79. This includes the renewable portion of a diesel fuel derived from co-processing biomass with a petroleum feedstock.

(124) "Renewable Hydrogen" means hydrogen derived from (1) electrolysis of water or aqueous solutions using renewable electricity; (2) catalytic cracking or steam methane reforming of biomethane; or (3) thermochemical conversion of biomass, including the organic portion of municipal solid waste (MSW). Renewable electricity, for the purpose of renewable hydrogen production by electrolysis, means electricity derived from sources that qualify as eligible renewable energy resources as defined in California Public Utilities Code sections 399.11-399.36.

(125) "Renewable Propane" means liquefied petroleum gas (LPG or propane) that is produced from non-petroleum renewable resources.

(126) "SAE CCS Connector" means a connector that supports both AC J1772 and DC Charging and created by the Society of Automobile Engineers, which is a standards development organization for vehicle technology.

(127) "Shore Power" means electrical power being provided either by the local utility or by distributed generation to ocean-going vessels at-berth.

(128) "Single-family Residence" means a building designed to house a family in a single residential unit. A single-family residence is either detached or attached including duplex or townhouse units.

(129) "Site-specific Data" and "Site-specific Input" means an input value used in determination of fuel pathway carbon intensity value, or the raw operational data used to calculate an input value, which is required to be unique to the facility, pathway, and feedstock. All site-specific inputs must be measured, metered or otherwise documented, and verifiable, e.g., consumption of natural gas or grid electricity at a fuel production facility must be documented by invoices from the utility.

(130) "Specified Source Feedstocks" means feedstocks that require the chain of custody evidence specified in 95488.8(g)(1)(B) to be eligible for a reduced CI associated with the use of a waste, residue, by-product or similar material. Specified source feedstocks are identified in section 95488.8(g)(1)(A).

(131) "Staff" means CARB personnel unless otherwise specified or dictated by context.

(132) "Station Operational Status System (SOSS)" means a software database tool developed and maintained by California Fuel Cell Partnership to publicly monitor the operational status of hydrogen stations.

(133) "Steam Quality" means the ratio of the mass of vapor to the total mass of a vapor-liquid mixture of water at its saturation temperature.

(134) "Technical Corn Oil" means inedible oil recovered from thin stillage or the distiller's grains and solubles produced by a dry mill corn ethanol plant, termed distiller's corn oil (DCO), or other non-food grade corn oil from food processing operations.

(135) "Technical Sorghum Oil" means inedible oil recovered from thin stillage or the distiller's grains and solubles produced by a dry mill sorghum ethanol plant, termed distiller's sorghum oil (DSO), or other non-food grade sorghum oil from food processing operations.

(136) "Total Obligated Amount (TOA)" means the quantity of fuel for which the fuel reporting entity is the eligible credit or deficit generator. The LRT-CBTS calculates the TOA for each fuel pathway code. TOA is calculated as the difference between the fuel reported using transaction types that increase the net quantity of fuel that generates credits or deficits in the LRT-CBTS and the fuel reported using transaction types that decrease the net quantity of fuel that generates credits or deficits in the LRT-CBTS. Transaction types that increase the TOA include: Production in California, Production for Import, Import, Purchased with Obligation, Gain of Inventory. Transaction types that decrease the TOA include: Sold with Obligation, Loss of Inventory, Export, Not Used for Transportation.

(137) "Total Amount (TA)" means the total quantity of fuel reported by a fuel reporting entity irrespective of whether the entity retained status as the credit or deficit generator for that specific fuel volume. TA is calculated as the difference between the fuel reported using transaction types that increase the net fuel quantity reported in the LRT-CBTS and fuel reported using transaction type that decrease the net fuel quantity reported in the LRT-CBTS. Transaction types that increase the TA include: Production in California, Production for Import, Import, Purchased with Obligation,

Purchased without Obligation, Gain of Inventory. Transaction types that decrease the TA include: Sold with Obligation, Sold without Obligation, Loss of Inventory, Export, Not Used for Transportation.

(138) "Transaction Date" means the title transfer date as shown on the Product Transfer Document.

(139) "Transaction Quantity" means the amount of fuel reported in a transaction. A Transaction Quantity must be reported in units, provided in Table 4 and in the LRT-CBTS.

(140) "Transaction Type" means the nature of a fuel-based transaction as defined below:

(A) "Production in California" means the transportation fuel was produced at a facility in California for use in California;
(B) "Production for Import" means the transportation fuel was produced outside of California and imported into California for use in transportation.
(C) "Import" means the transportation fuel was produced outside of California and later brought by any party other than its producer into California for use in transportation.
(D) "Purchased with Obligation" means the transportation fuel was purchased with the obligation to claim credits or deficits in the LRT-CBTS from a separate fuel reporting entity;
(E) "Purchased without Obligation" means the transportation fuel was purchased without obligation to claim credits or deficits in the LRT-CBTS from a separate fuel reporting entity;
(F) "Sold with Obligation" means the transportation fuel was sold with the obligation to claim credits or deficits in the LRT-CBTS by a fuel reporting entity;
(G) "Sold without Obligation" means the transportation fuel was sold without obligation to claim credits or deficits in the LRT-CBTS by a fuel reporting entity;
(H) "Export" means any fuel reported in the LRT-CBTS that is subsequently delivered outside of California and is not used for transportation in California;
(I) "Loss of Inventory" means the fuel entered the California fuel pool but was not used due to volume loss;
(J) "Gain of Inventory" means the fuel entered the California fuel pool due to a volume gain;
(K) "Not Used for Transportation" means a transportation fuel was reported with compliance obligation under the LCFS but was later not used for transportation purposes in California or otherwise determined to be exempt under section 95482(d);

(L) "eTRU Fueling" means providing fuel to electric transport refrigeration units.

(M) "eCHE Fueling" means providing fuel to electric cargo handling equipment.

(N) "eOGV Fueling" means providing shore power to an ocean-going vessel at-berth.

(O) "EV Charging – Grid" means providing electricity to recharge EVs using the California Average Grid Electricity Lookup Table pathway for a given year as specified in section 95488.5;

(P) "EV Charging – Non-Grid" means providing electricity that has a carbon intensity lower than the average grid electricity and is obtained through an approved arrangement as specified in section 95488.8(h) or section 95488.8(i) to recharge EVs;

(Q) "EV Charging – Smart Charging" means providing electricity that is eligible to generate credits under the smart charging provisions in section 95488.5 to recharge EVs;

(R) "Fixed Guideway Electricity Fueling" means fueling light rail, heavy rail, cable car, street car, and trolley bus, or exclusive right-of-way bus operations with electricity;

(S) "Forklift Electricity Fueling" means providing fuel to electric forklifts;

(T) "Forklift Hydrogen Fueling" means providing fuel to hydrogen forklifts;

(U) "Fuel Cell Vehicle (FCV) Fueling" means the dispensing of hydrogen at a fueling station designed for fueling hydrogen fuel cell electric vehicles;

(V) "Fuel Cell Vehicle (FCV) Fueling – Smart Electrolysis" means the dispensing of hydrogen that is eligible to generate credits under the smart charging or electrolysis provisions in section 95488.5;

(W) "NGV Fueling" means the dispensing of natural gas at a fueling station designed for fueling natural gas vehicles;

(X) "Propane Fueling" means the dispensing of propane at a fueling station designed for fueling propane vehicles.

(141) "Transmix" means a mixture of refined products that forms when these products are transported through a pipeline. This mixture is typically a combination of two of the following: gasoline, diesel, or jet fuel.

(142) "Transportation Fuel" means any fuel used or intended for use as a motor vehicle fuel or for transportation purposes in a non-vehicular source.

(143) "Uncertainty" means the degree to which data or a data system is deemed to be indefinite or unreliable.

(144) "Used Cooking Oil" (or UCO) means fats and oils originating from commercial or industrial food processing operations, including restaurants, that have been used for cooking or frying. Feedstock characterized as

UCO must contain only fats, oils, or greases that were previously used for cooking or frying operations. UCO must be characterized as "processed UCO" if it is known that processing has occurred prior to receipt by the fuel production facility or if evidence is not provided to the verifier or CARB to confirm that it is "unprocessed UCO."

(145) "Validation" means verification of a fuel pathway application.

(146) "Validation Statement" means the final statement rendered by a verification body attesting whether the fuel pathway application is free of material misstatement, and whether it conforms to the requirements of this subarticle.

(147) "Verification" means a systematic, independent and documented process for evaluation of reported data against the requirements specified in this subarticle.

(148) "Verification Body" means an entity accredited by the Executive Officer that is able to render a validation or verification statement and provide validation or verification services to entities required to contract for validation or verification.

(149) "Verification Services" means services provided during validation or verification as specified in section 95501 beginning with the development of the validation or verification plan to submitting a validation or verification statement to CARB.

(150) "Verification Statement" means the final statement rendered by a verification body attesting whether the responsible entity's report is free of material misstatement, when applicable, and whether the report conforms to the requirements of this subarticle.

(151) "Verification Team" means all persons working for a verification body, including all subcontractors, to provide validation or verification services to an entity required to contract for validation or verification.

(152) "Verifier Review" means all reviews and services specified in section 95501 that a verifier conducts, except the material misstatement assessment under section 95501(b)(9) through (11). If some data sources are selected for data checks based on the sampling plan, the verifier will check for conformance with the requirements of this subarticle.

(153) "Yard Truck" An off-road mobile utility vehicle used to carry cargo containers with or without chassis; also known as utility tractor rig (UTR), yard tractor, yard goat, yard hostler, yard hustler, or prime mover. For the

purpose of LCFS crediting an electric yard truck is considered a heavy-duty truck.

(154) "Yellow Grease" means a commodity produced from a mixture of: (A) used cooking oil, and (B) rendered animal fats that were not used for cooking. This mixture often is combined from multiple points of origin. Yellow grease must be characterized as "animal fat" if evidence is not provided to the verifier or CARB to confirm the quantity that is animal fat and the quantity that is used cooking oil.

(b) *Acronyms.* For the purposes of sections 95480 through 95503, the following acronyms apply.

"AEZ-EF" means Agro-Ecological Zone Emissions Factor model.
"AJF" means Alternative Jet Fuel.
"ASTM" means ASTM International (formerly American Society for Testing and Materials).
"AFP" means Alternative Fuel Portal.
"BEV" means battery electric vehicles.
"CA-GREET" means California-modified Greenhouse Gases, Regulated Emissions, and Energy use in Transportation model.
"CARB" means the California Air Resources Board ("Board").
"CARBOB" means California reformulated gasoline blendstock for oxygenate blending.
"CaRFG" means California reformulated gasoline.
"CCM" means Credit Clearance Market.
"CEC" means California Energy Commission.
"CFR" means Code of Federal Regulations.
"CHAdeMO" means Charge de Move, a DC fast charging protocol.
"CI" means carbon intensity.
"CNG" means compressed natural gas.
"DC" means Direct Current.
"DCO" means Distiller's Corn Oil or Technical Corn Oil.
"DSO" means Distiller's Sorghum Oil or Technical Sorghum Oil.
"eCHE" means Electric Cargo Handling Equipment.
"EDU" means Electrical Distribution Utility.
"EER" means energy economy ratio.
"eTRU" means electric transport refrigeration unit.
"eOGV" means Electric Power for Ocean-going Vessel.
"EV" means electric vehicle.
"FCV" means fuel cell vehicle.
"FPC" means fuel pathway code.
"FSE" means fueling supply equipment.
"gCO_2e/MJ" means grams of carbon dioxide equivalent per megajoule.
"GTAP" means the Global Trade Analysis Project model.
"GTSR" means the Green Tariff Shared Renewables program.

"GVWR" means gross vehicle weight rating.
"HySCapE" means Hydrogen Station Capacity Evaluator.
"H_2" means hydrogen.
"HDV" means heavy-duty vehicles.
"HDV-CIE" means a heavy-duty vehicle compression-ignition engine.
"HDV-SIE" means a heavy-duty vehicle spark-ignition engine.
"HEV" means hybrid electric vehicle.
"ICEV" means internal combustion engine vehicle.
"LUC" means land use change.
"LCA" means life cycle analysis.
"LCFS" means Low Carbon Fuel Standard.
"LDV" means light-duty vehicles.
"L-CNG" means liquefied compressed natural gas.
"LNG" means liquefied natural gas.
"LPG" means liquefied petroleum gas.
"LRT-CBTS" means LCFS Reporting Tool and Credit Bank & Transfer System.
"LSE" means Load-Serving Entity.
"LVP" means LCFS Verification Portal.
"MCON" means marketable crude oil name.
"MDV" means medium-duty vehicles.
"MMBtu" means million British Thermal Units.
"MRR" means Mandatory Greenhouse Gas Reporting Regulation.
"MT" means metric tons of carbon dioxide equivalent.
"NG" means natural gas.
"NGV" means a natural gas vehicle.
"OPGEE" means Oil Production Greenhouse gas Emissions Estimator Model.
"PHEV" means plug-in hybrid vehicles.
"RFS" means the Renewable Fuel Standard.
"RNG" means renewable natural gas or biomethane.
"SAE CCS" means Society of Automotive Engineers Combined Charging System, a DC fast charging protocol.
"SMR" means steam methane reformation.
"SOSS" means Station Operational Status System.
"UCO" means used cooking oil.
"TEOR" means thermally enhanced oil recovery.
"ULSD" means California ultra-low sulfur diesel.
"U.S. EPA" means the United States Environmental Protection Agency.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95482. Fuels Subject to Regulation.

(a) *Applicability of the Low Carbon Fuel Standard.* Except as provided in this section, the California Low Carbon Fuel Standard regulation, California Code of Regulations (CCR), title 17, sections 95480 through 95503 (collectively referred to as the "LCFS") applies to any transportation fuel, as defined in section 95481, that is sold, supplied, or offered for sale in California, and to any person who, as a fuel reporting entity defined in section 95481 and specified in section 95483, is responsible for reporting a transportation fuel in a calendar year. The types of transportation fuels to which the LCFS applies include:

(1) California reformulated gasoline ("gasoline" or "CaRFG");
(2) California diesel fuel ("diesel fuel" or "ULSD");
(3) Fossil compressed natural gas ("Fossil CNG"), fossil liquefied natural gas ("Fossil LNG"), or fossil liquefied compressed natural gas ("Fossil L-CNG);
(4) Bio-CNG, bio-LNG, or bio-L-CNG;
(5) Electricity;
(6) Compressed or liquefied hydrogen ("hydrogen");
(7) A fuel blend containing greater than 10 percent ethanol by volume;
(8) A fuel blend containing biomass-based diesel;
(9) Denatured fuel ethanol ("E100");
(10) Neat biomass-based diesel ("B100" or "R100");
(11) Alternative Jet Fuel;
(12) Propane; and
(13) Any other liquid or non-liquid fuel.

(b) *Opt-In Fuels.* Each of the following alternative fuels ("opt-in fuels") is presumed to have a full fuel cycle, carbon intensity that meets the compliance schedules set forth in sections 95484(b) through (d) through December 31, 2030. A fuel provider for an alternative fuel listed below may generate LCFS credits for that fuel only by electing to opt into the LCFS as an opt-in fuel reporting entity pursuant to section 95483.1 and meeting the requirements of this regulation:

(1) Electricity;
(2) Bio-CNG;
(3) Bio-LNG;
(4) Bio-L-CNG;
(5) Alternative Jet Fuel; and
(6) Renewable Propane.

(c) *Exemption for Specific Fuels*. The LCFS regulation does not apply to:

(1) An alternative fuel that:

(A) is not a biomass-based fuel; and

(B) is supplied in California by all providers of that particular fuel for transportation use at an aggregated quantity of less than 420 million MJ (3.6 million gasoline gallon equivalent) per year;

A fuel reporting entity that believes it is subject to this exemption has the sole burden of proving to the Executive Officer's satisfaction that the exemption applies to the entity.

(2) Conventional jet fuel or aviation gasoline.

(3) Any deficit-generating fuel used in military tactical vehicles and tactical support equipment as defined in title 13, CCR, section 1905(a) and CCR, title 17, section 93116.2(a)(38), respectively.

(4) Any credit-generating fossil CNG or fossil propane dispensed at a fueling station with total throughput of 150,000 gasoline-gallons equivalent or less per year. The exemption for fossil propane dispensing stations expires January 1, 2021, when the use of that fuel in heavy-duty or off-road applications becomes deficit generating. The exemption for fossil CNG dispensing stations expires January 1, 2024, when the use of that fuel in heavy-duty or off-road applications becomes deficit generating.

(d) *Exemption for Specific Applications*. The LCFS regulation does not apply to any transportation fuel used in the following applications:

(1) Locomotives not subject to the requirements specified in CCR, title 17, section 93117; and
(2) Ocean-going vessels, as defined in CCR, title 17, section 93118.5(d). This exemption does not apply to shore power provided to ocean-going vessels at-berth, nor to recreational and commercial harbor craft, as defined in CCR, title 17, section 93118.5(d); and
(3) Any deficit-generating fossil propane and CNG used in school buses purchased prior to January 1, 2020.

(e) Nothing in this LCFS regulation (Cal. Code Regs., tit. 17, §§ 95480 et seq.) may be construed to amend, repeal, modify, or change in any way the California reformulated gasoline regulations (CaRFG, Cal.Code Regs., tit. 13, §§ 2260 et seq.), the California diesel fuel regulations (Cal.Code Regs., tit. 13, §§ 2281-2285 and Cal. Code Regs., tit. 17, § 93114), or any other applicable State or federal requirements. A person, including the regulated entity as that term is defined in the LCFS regulation, who is subject to the LCFS regulation or other State and federal regulations, shall be solely responsible for ensuring compliance with all applicable LCFS requirements and other State and federal requirements, including the CaRFG requirements and obtaining any necessary approvals, exemptions, or orders from either the State or federal government.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018, Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95483. Fuel Reporting Entities.

The purpose of this section is to identify the first fuel reporting entities, subsequent fuel reporting entities, and the credit or deficit generator for each type of transportation fuel. The first fuel reporting entity is responsible for initiating reporting within the LRT-CBTS for a given amount of fuel and, by default, also holds the status as initial credit or deficit generator for the reported fuel quantity. The fuel reporting entities identified in this section are subject to the reporting requirements pursuant to section 95491 and to any other requirement applicable to a fuel reporting entity and credit or deficit generator under this subarticle.

(a) *For Liquid Fuels.* Liquid fuels refer to fossil fuels (including CARBOB, gasoline, diesel, and conventional jet fuel), liquid alternative fuels (including ethanol as an oxygenate, biomass-based diesel, and alternative jet fuels), and blend of liquid alternative and fossil fuels.

(1) *Designation of First Fuel Reporting Entities for Liquid Fuels.* The first fuel reporting entity for liquid fuels is the producer or importer of the liquid fuel. For liquid fuels that are a blend of liquid alternative fuel components (including ethanol as an oxygenate, biomass-based diesel, or alternative jet fuels) and a fossil fuel component (including CARBOB, gasoline, diesel, conventional jet, or other fossil fuels), the first fuel reporting entity is the following:

(A) With respect to the alternative fuel component, the producer or importer of the alternative fuel component.

(B) With respect to the fossil fuel component, the producer or importer of the fossil fuel component.

(C) *Specifics for Alternative Jet Fuel.* For an alternative jet fuel or the alternative fuel portion of a blend with conventional jet fuel, the first fuel reporting entity is the producer or importer of the alternative jet fuel, which is delivered to a storage facility where fuel is stored before it is uploaded to an aircraft in California. Conventional jet fuel, including the conventional jet fuel portion of a blend, is not subject to the LCFS and must not be reported.

(2) *In the Case of Transfer of Fuel Ownership.* An entity transferring ownership of fuel is the "transferor" and an entity acquiring ownership of fuel is the "recipient."

(A) *Transferring Status as Credit or Deficit Generator.* An entity can voluntarily transfer its status as a credit or deficit generator for a given amount of liquid fuel, with the ownership of the fuel, if the conditions set forth in subsections 1. through 4. below are met by the time ownership of fuel is transferred. If such a transfer occurs, the recipient also becomes the fuel reporting entity for the fuel while the transferor is still subject to reporting requirements pursuant to section 95491 and to any other requirement applicable to a fuel reporting entity under this subarticle.

1. The two entities agree by written contract that the recipient accepts all LCFS responsibilities of a fuel reporting entity and credit or deficit generator.

2. The transferor must provide the recipient a product transfer document that prominently states the information specified in section 95491.1(b)(1).

3. In the case of a deficit generating fuel, the transferor and recipient must meet the requirements specified in the subsection below:

a. By default, the transferor's annual credit and deficit balance, as set forth in section 95485(b)(2), will be updated to include the $Deficits^{XD}_{Incremental20XX}$ as defined and set forth in section 95489(b).

b. By default, the recipient's annual credit and deficit balance, as set forth in section 95485(b)(2), will be updated to include $Deficits^{XD}_{Base}$, as defined and set forth in section 95489(b).

c. Paragraphs a. and b. above notwithstanding, the transferor and recipient of deficit generating fuels may, by the time the ownership is transferred, specify by written contract which party is responsible for accounting for the base deficit and incremental deficit in the annual credits and deficits balance calculation set forth in section 95485(b)(2).

4. The credit or deficit generator status cannot be passed to a downstream entity acquiring ownership of liquid fuel below the rack.

5. An entity acquiring ownership of fuel below the rack is not required to report the fuel transaction in the LRT-CBTS unless it is a fuel exporter pursuant to section 95483(a)(4)(C).

(B) *Retaining Status as Credit or Deficit Generator.* An entity can retain its status as a credit or deficit generator for a given amount of liquid fuel, while transferring the ownership of the fuel, if the conditions set forth in subsections 1. through 2. below are met by the time ownership of fuel is transferred. If such a transfer occurs, the recipient also becomes a fuel reporting entity for the fuel while the transferor is still subject to reporting requirements pursuant to section 95491 and to any other requirement applicable to a fuel reporting entity under this subarticle.

1. The two entities agree by written contract that the recipient accepts all LCFS responsibilities of a fuel reporting entity and the transferor retains the responsibilities as a fuel reporting entity and credit or deficit generator.

2. The transferor must provide the recipient a product transfer document that prominently states the information specified in section 95491.1(b)(2).

3. An entity acquiring ownership of fuel below the rack is not required to report the fuel transaction in the LRT-CBTS unless it is a fuel exporter pursuant to section 95483(a)(4)(C).

(3) *Transfer Period.* For all liquid fuels, the period in which credit or deficit generator status can be transferred to another entity, for a given amount of fuel, is limited to three calendar quarters. This means that, for example, if an entity receives title to a fuel along with credit or deficit generator status in the first calendar quarter, the status as credit or deficit generator for that amount of fuel can be transferred to another entity no later than the end of the third calendar quarter. After this period is over, the credit and deficit generator status for that amount of fuel cannot be transferred.

(4) *Designation of Fuel Exporter.* Entities responsible for reporting exports of fuel that has been previously reported in the LRT-CBTS are identified below:

(A) When the fuel is sold or delivered above the rack for export, the entity holding title to the fuel as it crosses the California border on its way toward the first point of sale/delivery is responsible for reporting the export in the LRT-CBTS.

(B) When the fuel is sold across the rack for export, the entity holding title to the fuel as the fuel crosses the rack is responsible for reporting the export in the LRT-CBTS.

(C) When the fuel is diverted out-of-state below the rack, the entity holding title to the fuel, as it crosses the California border, is responsible for reporting the export in the LRT-CBTS.

(b) *For Gaseous Fuels.* Gaseous fuels refer to natural gas fuels (including CNG, LNG and L-CNG), propane and hydrogen.

(1) *Designation of First Fuel Reporting Entities For Gaseous Fuels.* The first fuel reporting entity for different gaseous fuels is identified in subsections (A) through (E) below. For gaseous fuels, subsection (2) below provides entities the ability to contractually designate another entity as the first fuel reporting entity for a given amount of gaseous fuel.

(A) *Bio-CNG.* For bio-CNG, including the bio-CNG portion of a blend with fossil CNG, the first fuel reporting entity is the producer or importer of the biomethane.

(B) *Bio-LNG and Bio-L-CNG.* For bio-LNG and bio-L-CNG, including the biomethane portion of any blend with fossil LNG and L-CNG, the first fuel reporting entity is the producer or importer of the biomethane.

(C) *Renewable Propane*. For renewable propane, including the renewable propane portion of a blend with fossil propane, the first fuel reporting entity is the producer or importer of the renewable propane.

(D) *Fossil CNG, LNG, and L-CNG and Propane.* For fossil CNG, LNG, L-CNG, and propane, including the fossil portion of any blend with a renewable fuel component, the first fuel reporting entity is the entity that owns the fueling equipment through which the fossil fuel is dispensed to motor vehicles for transportation use.

(E) *Hydrogen.* The first fuel reporting entity for hydrogen is the entity that owns the fueling supply equipment ("hydrogen station owner") through which hydrogen fuel is dispensed to motor vehicles for transportation use. Notwithstanding the above, the first fuel

reporting entity for hydrogen used in fuel cell forklifts is the forklift fleet owner.

(2) Subsections (1)(A) through (1)(E) above notwithstanding, an entity may elect not to be the first fuel reporting entity for a given gaseous fuel, provided another entity has contractually agreed to be the first fuel reporting entity for the fuel on its behalf. In such cases the two entities must agree by written contract that:

(A) The original first fuel reporting entity per subsections (1)(A) through (1)(E) above will not generate credits or deficits in the LCFS and will instead provide the amount of fuel dispensed, and other required information pursuant to sections 95483.2(b)(8), 95491 and 95491.1, to the contractually designated entity for the purpose of LCFS reporting and credit or deficit generation.

(B) The contractually designated entity accepts all LCFS responsibilities as the first fuel reporting entity and as a credit or deficit generator, as applicable.

(c) *For Electricity Used as a Transportation Fuel.*

(1) *Residential EV Charging.* For on-road transportation fuel supplied for electric vehicle (EV) charging in a single- or multi-family residence, the following entities are the credit generators:

(A) *Base Credits.* The EDU or its designee is the credit generator for base credits for the portion of residential EV charging assigned to that EDU by the Executive Officer. The EDU may authorize a third party to sell the EDU's credits. The EDU or its designee must meet the requirements set forth in paragraphs 1. and 2. below, and paragraphs 1. through 5. in section 95491(d)(3)(A).

1. Upon California Public Utilities Commission (CPUC) approval of Pacific Gas and Electric's, Southern California Edison's, and San Diego Gas and Electric's filing(s) to initiate a statewide point of purchase rebate, all opt-in EDUs must contribute a minimum percent of base credits for residential EV charging (or net base credit proceeds) to provide a statewide point of purchase rebate funded exclusively by LCFS credit proceeds, as per the contribution tabulated below:

EDU category	% Contribution in years 2019 through 2022	% Contribution in years 2023 and subsequent years
Investor-owned Utilities	67%	67%

Large Publicly-owned Utilities	35%	45%
Medium Publicly-owned Utilities	20%	25%
Small Publicly-owned Utilities	0%	2%

The Executive Officer will review the implementation of any statewide point of purchase rebate program, including the actual credit value contribution of each utility to the program, and present a report to the Board by January 1, 2025 with recommendations for further increasing utility contributions to the point of purchase rebate program.

2. The rebate amounts for any statewide point of purchase rebate program must be calculated based on the vehicle's battery capacity as tabulated below:

Battery Capacity (kWh)	Rebate %
$C < 5$	0%
$C = 5$	38.9%
$5 < C < 16$	$\left(38.9 + \frac{(C-5)}{11} \times 61.1\right)$ %
$C \geq 16$	100%

where:

$Rebate$ % means the percentage of maximum rebate a vehicle would receive under the statewide point of purchase rebate program funded by LCFS credit proceeds. The maximum rebate is the amount a vehicle with a battery capacity of 16 kWh or greater can receive; and

C means the rated battery capacity of the electric vehicle in kWh.

(B) *Incremental Credits.* Any entity, including an EDU, is eligible to generate incremental credits for improvements in carbon intensity of electricity used for residential EV charging. An entity that generates incremental credits must meet the requirements set forth

in paragraphs 2. through 7. in section 95491(d)(3)(A), as applicable.

1. For metered residential EV charging, incremental credits for each FSE may be generated for one of the following:

   a. Low-CI electricity; or

   b. Smart charging. In the case of an entity claiming smart charging incremental credits, the credit generator must demonstrate the residence is enrolled in a Time-of-Use rate plan, if offered by the LSE serving the residence.

2. Multiple claims for incremental credits for metered residential EV charging associated with a single FSE ID will be resolved pursuant to the following order of preference:

   a. The Load Serving Entity (LSE) supplying electricity to the EV associated with the FSE ID and metered data has first priority to claim credits;

   b. The manufacturer of the EV associated with the FSE ID has second priority; and

   c. Any other entity has third priority.

3. For non-metered residential EV charging, the EDU is eligible to generate incremental credits for supplying low-CI electricity to the EVs in its service territory.

(2) *Non-Residential EV Charging.*

(A) For electricity supplied for non-residential EV charging, the owner of the FSE is eligible to generate the credits.

(B) Subsection (A) above notwithstanding, the owner of FSE may elect not to be the credit generator and instead designate another entity to be the credit generator if the two entities agree by written contract that:

1. The owner of FSE will not generate credits and will instead provide the electricity data to the designated entity for LCFS reporting pursuant to sections 95483.2(b)(8), 95491 and 95491.1.

2. The designated entity accepts all LCFS responsibilities as the fuel reporting entity and credit generator.

(C) An entity that generates credits for non-residential EV charging must meet the requirements set forth in paragraphs 2. through 7. in section 95491(d)(3)(A), as applicable.

(3) *Fixed Guideway Systems.* For electricity supplied as transportation fuel to a fixed guideway system, the transit agency operating the system is the fuel reporting entity and the credit generator for electricity used to propel the system. Upon submittal to the Executive Officer of the transit agency's written acknowledgment that it will not opt in and generate credits under this provision, the EDU becomes eligible to generate the credits for the electricity, and must meet the requirements set forth in sections 95491(d)(3)(A), paragraphs 3. through 5.

(4) *Electric Forklifts.*

(A) For transportation fuel supplied to electric forklifts, the fleet owner is the fuel reporting entity and the credit generator for electricity supplied to a specified fleet.

(B) Subsection (A) above notwithstanding, the electric forklift fleet owner may elect not to be the credit generator and instead designate another entity to be the credit generator, if the two entities agree by written contract that:

1. The electric forklift fleet owner will not generate credits and will instead provide the electricity data to the designated entity for LCFS reporting pursuant to sections 95483.2(b)(8), 95491 and 95491.1.

2. The designated entity accepts all LCFS responsibilities as the fuel reporting entity and credit generator.

3. The EDU can generate credits for electricity supplied to electric forklift fleet in its service territory during a reporting period if not claimed by any other entity under paragraphs 1. and 2., above. The EDU must meet the requirements in section 95491(d)(3)(A), paragraphs 3. through 5.

(5) *Electric Transport Refrigeration Units (eTRU), Electric Cargo Handling Equipment (eCHE), Electric Power for Ocean-going Vessel (eOGV).*

(A) For electricity supplied to eTRU, eCHE, or eOGV, the owner of the FSE is the fuel reporting entity and the credit generator.

(B) Subsection (A) above notwithstanding, the owner of the FSE may elect not to be the credit generator and instead designate another entity to be the credit generator if the two entities agree by written contract that:

1. The owner of the FSE will not generate credits and will instead provide the electricity data to the designated entity for LCFS reporting pursuant to sections 95483.2(b)(8), 95491 and 95491.1.

2. The designated entity accepts all LCFS responsibilities as the fuel reporting entity and credit generator.

(C) An entity that generates credits for eTRU, eCHE, or eOGV must meet the requirements set forth in paragraphs 2. through 7. in section 95491(d)(3)(A), as applicable.

(6) *Other Electric Transportation Applications.* For electricity supplied to a transportation application not covered in subsection (1) through (5) above, any entity can apply to the Executive Officer to be the fuel reporting entity and the credit generator for electricity supplied as long as it meets the requirements of section 95488.7(a)(3) and 95491.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95483.1. Opt-In Entities.

(a) *Eligibility.* An entity that meets one or more of the following criteria may opt into the LCFS program, thereby becoming a credit generator.

(1) *Opt-in Fuel Reporting Entity.* An entity meeting any of the following criteria can opt into the LCFS program in a capacity of fuel reporting entity.

(A) A qualified fuel reporting entity who provides a fuel specified in section 95482(b) that meets the requirements of section 95483, wherever applicable;

(B) An out-of-state producer of oxygenate for blending with CARBOB or gasoline, or biomass-based diesel for blending with CARB diesel, who is not otherwise already subject to the LCFS regulation as an importer. An out-of-sate producer under this subsection may retain the ability to generate credits or deficits, for a specific

quantity of fuel or blendstock, only if it opts in as a first fuel reporting entity and meets the requirements of section 95483, wherever applicable.

(C) An entity that is in the distribution/marketing chain of imported fuel and is positioned on that chain between the producer in subsection (B) above and the importer ("intermediate entity"). The intermediate entity is subject to the following requirements.

The intermediate entity must provide written documentation demonstrating all the following requirements to the Executive Officer's written satisfaction before opting into the LCFS:

1. The entity received ownership of the fuel for which the entity is claiming to generate LCFS credits;

2. Either:

   a. The entity received the fuel reporting entity status from a producer that opted in under section 95483.1; or
   b. The producer did not opt in under section 95483.1(a)(1).

3. The entity actually delivered the fuel or caused the fuel to be delivered to California for use in California;

4. The fuel delivered under subsection 3. is shown to have been sold for use in California or was otherwise actually used in California; and

4. The entity is not otherwise already subject to the LCFS regulation as a fuel reporting entity.

5. The demonstrations in paragraphs 1. through 4. above must be made for the specific quantity of fuel upon which the entity first elects to opt into the LCFS. For subsequent quantities of fuel for which the entity is claiming to be the fuel reporting entity pursuant to this subsection, the entity must retain documentation to support the demonstrations required in paragraphs 1. through 4., above, and must submit such documentation to the Executive Officer within 30 calendar days upon request.

(2) *Project Operators.* An entity that has a project approved for crediting or is applying for approval by the Executive Officer under section 95489 must apply to opt into the LCFS program as a credit generator.

(3) *Clearing Service Provider.*

(A) An entity providing clearing services in which it takes only a temporary possession of LCFS credits for the purpose of clearing transactions between two entities with registered accounts in LRT-CBTS, may apply to opt in as a clearing service provider if the following conditions are met:

1. The eligible entity must be a derivatives clearing organization as defined in the Commodities Exchange Act (7 U.S.C § 1a(9)) that is registered with the U.S. Commodity Futures Trading Commission pursuant to the Commodities Exchange Act (7 U.S.C. § 7a-1(a)).

2. The entity must register in the LRT-CBTS pursuant to section 95483.2(b).

3. The entity must be located in the United States, according to the registration information reported pursuant to section 95483.2(b).

(B) A clearing service provider cannot own credits but can hold LCFS credits up to five days for clearing purposes only.

(b) *Opting in Procedure.* The procedure for opting into and opting out of the LCFS for such a person is set forth as follows.

(1) Opting into the LCFS program becomes effective when the opt-in entity establishes an account in the LRT-CBTS, pursuant to section 95483.2. The opt-in entity may not report and generate credits and deficits based on transactions that precede the quarter in which the entity opted in.

(2) Establishing an account in the LRT-CBTS under subsection (b)(1) above means that the entity understands the requirements of the LCFS regulation and has agreed to be subject to all the requirements and provisions of the LCFS regulation.

(c) *Opting Out Procedure.* An opt-in entity may decide later to opt out of the LCFS program by following the following procedure:

(1) For opt-out to be effective, the opt-in entity must complete all actions specified below:

(A) Provide to the Executive Officer a 90-day notice of intent to opt out and a proposed effective opt-out date;

(B) Submit in the LRT-CBTS any outstanding quarterly fuel transactions or project reports up to the quarter in which the effective opt-out date falls and a final annual compliance report (covering the year through the opt-out date); and

(C) Identify in the 90-day notice any actions to be taken to eliminate any remaining deficits by the effective opt-out date.

(2) *Opt-Out Approval.* The Executive Officer shall notify the opt-in entity of the final "approval" status of the opt-out request. Any credits that remain in the opt-in entity's account at the time of the effective opt-out date shall be forfeited and the opt-in entity's account in the LRT-CBTS shall be closed.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95483.2. LCFS Data Management System.

The LCFS Data Management System refers to all the online systems responsible for LCFS data management and program implementation.

The LCFS Data Management System comprises three interactive and secured web-based systems: Alternative Fuel Portal, LCFS Reporting Tool and Credit Bank and Transfer System, and LCFS Verification Portal.

(a) *Alternative Fuel Portal (AFP)*. The AFP supports fuel pathway applications, certifications, and verifications. It also handles the registration of fuel production facilities and opt-in projects.

(1) *Eligibility.* Any person who intends to be a fuel pathway applicant or an opt-in project operator can request to establish an account in the AFP.

(2) *Requirements to Establish an Account in AFP.* To establish an account in the AFP, an entity must complete and submit the online AFP account registration form and provide the following:

(A) Organization name, address, state and country, Organization Federal Employer Identification Number (FEIN), company EPA ID, if available, facility location(s).

(B) A letter on company letterhead stating the basis for qualifying for an account pursuant to subsection (1) above. This letter must be signed by the company owner, a president, a managing partner, or a corporate officer. An electronic copy of the signed letter must be uploaded in the AFP.

(C) The registrant must designate a primary account representative and at least one alternate account representative. The primary account representative and the alternate account representative(s) must attest, as follows:

"I certify under penalty of perjury under the laws of the State of California as follows: I was selected as the primary account representative or the secondary account representative, as applicable, by an agreement that is binding on all persons who have the legal right to access the AFP account. I have all the necessary authority to carry out the duties and responsibilities contained in California Code of Regulations, title 17, sections 95480 et seq. on behalf of such persons and that each such person shall be fully bound by my representations, actions, inactions, or submissions and by any order or decision issued to me by the Executive Officer or a court regarding the account."

(D) For each representative, name, title, relationship to the organization, business phone, e-mail address, username, and password.

(E) The account representatives can be changed by following steps set forth in subsection (B), (C), and (D) above. Notwithstanding any such change, all representations, actions, inactions, and submissions by the previous account representatives prior to the time and date when the Executive Officer receives the superseding information shall be binding on the entity.

(3) *Account Approval.*

(A) The account is established when the Executive Officer approves the application.

(B) Account registration application may be denied based on false, misleading, or missing information.

(4) *Account Management Roles and Duties.*

(A) The account representative is responsible for making any changes to the company profile within AFP.

(B) The account representative may designate users within the company who can access and manage the account.

(C) If any information required by section 95483.2(a)(2) changes, the entity holding the account must update the account to reflect the changes within 30 calendar days.

(b) *LCFS Reporting Tool and Credit Bank & Transfer System (LRT-CBTS)*. The LRT-CBTS is designed to support fuel transaction reporting, compliance demonstration, credit generation, banking, and transfers.

(1) *Eligibility.* The following entities can request to establish an account in the LRT-CBTS:

(A) A fuel reporting entity;
(B) An entity opting into LCFS, pursuant to section 95483 or 95483.1; or
(C) An LCFS credit broker.

(2) *Deadline to Establish LRT-CBTS Account.*

(A) An entity responsible for reporting any transportation fuels pursuant to section 95483 must complete registration at least 30 days prior to the date for filing any required report.

(B) An opt-in entity can register anytime during a calendar year. All quarterly and annual reporting is then required, beginning with the quarter in which registration was approved, and continuing until any opt-out is completed.

(C) Any broker must register in LRT-CBTS prior to facilitating any LCFS credit trades.

(3) *Requirements to Establish an Account in LRT-CBTS.* A company owner, a president, a managing partner, or a corporate officer with legal binding authority must complete and submit the online LRT-CBTS account registration form and provide the following:

(A) Organization name, address, state and country, Organization Federal Employer Identification Number (FEIN), date and place of incorporation.

(B) A letter on company letterhead stating the basis for qualifying for an account pursuant to subsection (1) above. This letter must be signed by the company owner, a president, a managing partner, or a corporate officer. A signed pdf copy must be uploaded in the LRT-CBTS to complete the application process.

(C) The online LRT-CBTS registration form must designate a primary account representative and at least one alternate account representative. The primary account representative and the alternate account representative(s) must attest in writing, as follows:

"I certify under penalty of perjury under the laws of the State of California as follows: I was selected as the primary account representative or the secondary account representative, as applicable, by an agreement that is binding on all persons who have the legal right to control LCFS credits held in the account. I have all the necessary authority to carry out the duties and responsibilities contained in California Code of Regulations, title 17, sections 95480 et seq. on behalf of such persons and that each such person shall be fully bound by my representations, actions, inactions, or submissions and by any order or decision issued to me by the Executive Officer or a court regarding the account."

(D) For each representative, name, title, relationship to the organization, business and mobile phone, e-mail address, username, and password.

(E) The account representatives can be changed by following steps set forth in subsections (B) through (D) above. Notwithstanding any such change, all representations, actions, inactions, and submissions by the previous account representatives prior to the time and date when the Executive Officer receives the superseding information shall be binding on the entity.

(F) A designated fuel reporting entity pursuant to section 95483(b) and (c) must also provide a written contractual agreement demonstrating it acquired the first fuel reporting entity status from another entity for each such entity.

(G) *Clearing Service Providers.* In addition to requirements specified in 95483.2(b)(3)(A) through (E), a clearing service provider requesting to establish an LRT-CBTS account must provide documents demonstrating their eligibility pursuant to section 95483.1(a)(3).

(4) *LCFS Credit Broker.* A broker may represent other LRT-CBTS account holders in LCFS credit transfers. To register a broker account, the broker must provide the following:

(A) Broker's organization name, address, state and country, Organization Federal Employer Identification Number (FEIN), date, and place of incorporation, if applicable.

(B) Broker's name, business and mobile phone, e-mail address, username, and password.

(C) Broker's statement attesting: "By submitting this broker registration application to the LCFS program for a broker account in the LRT-CBTS, I am submitting to the jurisdiction of the California courts. I certify under penalty of perjury that I have not been convicted of a felony in the last five years."

(5) *Account Approval.*

(A) The account is established when the Executive Officer approves the application.

(B) Account registration application may be denied based on false, misleading or missing information.

(6) *Account Management Roles and Duties.*

(A) The account representative is responsible for making any changes to the company profile within LRT-CBTS.

(B) The account representative may designate users within the company who can access and manage the account.

(C) The account representative is responsible for meeting the reporting requirements as set forth in section 95491.

(D) If any information required by section 95483.2(b)(3) changes, the entity holding the account must update the account to reflect the changes within 30 calendar days.

(7) *Account Closure.*

(A) An LRT-CBTS account is subject to suspension or closure based on any of the following:

1. The account holder is no longer eligible to establish an LRT-CBTS account pursuant to section 95483.2(b)(1);

2. The account holder fails to comply with requirements of section 95483.2(b); and

3. The account holder intends to opt out pursuant to section 95483.1(c).

(B) The account holder must provide a notice of intent to the LRT-CBTS Administrator to close the account within 90 days after any condition in subsection (A) above. The entity must submit a final quarterly report for the quarter in which the notice was provided, submit a final annual report, and submit verification that any remaining deficits have been eliminated. The Executive Officer shall notify the entity of the final account closure. Any credits that remain in the entity's account at the time of the closure will be placed in the Buffer Account.

(C) Failure to provide notice pursuant to subsection (B) above will result in account closure and forfeit of any credits that remain in the entities account at the time of the closure.

(D) When an entity requests to reopen the LRT-CBTS account that was previously closed, the entity must follow the requirements as set forth in section 95483.2(b) to reopen the account.

(8) *Registration of Fueling Supply Equipment (FSE).* After establishing the LRT-CBTS account, fuel reporting entities for natural gas, electricity, propane, and hydrogen must register all fueling supply equipment in the LRT-CBTS using the FSE registration template available on the LRT-CBTS home page. The completed FSE registration template with supporting documents must be uploaded into the LRT-CBTS. Upon FSE registration, the applicant will receive a unique LCFS FSE ID that must be used for reporting fuel transactions in the LRT-CBTS pursuant to 95491. The following must be provided:

(A) *General Requirements.* All FSE registrations must include:

1. Federal Employer Identification Number (FEIN) for the entity registering, name of the facility at which FSE is situated, street address, latitude, and longitude of the FSE location.

2. Name and address of the entity that owns the FSE, if different from the entity registering the FSE.

(B) *Specific Requirements by Fuel Type.*

1. For CNG, FSE refers to a fueling station associated with a utility meter. A CNG station with multiple dispensers is considered a single FSE. Fuel reporting entities for CNG must provide the natural gas utility meter number at the FSE location, name of the utility company, and a copy of the most recent utility bill.

2. For LNG and propane, FSE refers to a fueling station. An LNG or propane station with multiple dispensers is considered a single FSE. Fuel reporting entities for LNG and propane must provide a unique identifier associated with the FSE used for their own fuel accounting or financial accounting or other purposes and copy of invoice or bill of lading for the most recent fuel delivery.

3. For non-residential EV charging, FSE refers to each piece of equipment capable of measuring the electricity dispensed for EV charging. Fuel reporting entities for non-residential EV charging for on-road applications must provide the serial number assigned to the FSE by the original equipment manufacturer (OEM) and the name of OEM. If there are multiple FSEs at the same location, each unique piece of equipment must be registered separately.

4. For residential metered EV charging, FSE refers to a piece of equipment or on-vehicle telematics capable of measuring the electricity dispensed for EV charging.

    a. Fuel reporting entities for metered residential EV charging using off-vehicle meters must provide the serial number assigned to the FSE by the OEM, the name of the equipment OEM, and the Vehicle Identification Number (VIN) for the vehicle expected to be charged at the location.

    b. Fuel reporting entities using vehicle telematics must provide the VIN.

    c. FSE registration is optional when reporting metered electricity to generate base credits.

    d. Notwithstanding subsection (8)(A) above, location information and address is not required for residential charging.

5. Fuel reporting entities for fixed guideway systems are exempt from subsection (A)1. above. The LRT-CBTS will assign FSE IDs for reporting purposes based on the information provided in the LRT-CBTS account registration form.

6. For electric forklifts, eCHE, or eOGV, FSE refers to the facility or location where electricity is dispensed for fueling. If there are multiple FSEs capable of measuring the electricity dispensed at the facility or location, then it is optional to provide serial number assigned to each equipment by the OEM and the name of OEM.

7. For eTRU, FSE refers to each eTRU. Fuel reporting entities for eTRU fueling must provide the serial number assigned to the unit by the OEM and the name of the OEM.

8. For hydrogen, FSE refers to a fueling station. A hydrogen station with multiple dispensers is considered a single FSE. Fuel reporting entities for hydrogen must provide the station ID assigned by SOSS.

9. For transportation applications not covered in paragraphs 1. through 8. above, FSE refers to a fuel dispenser or a transportation equipment with the capability to measure the dispensed fuel in that equipment.

(c) *LCFS Verification Portal (LVP)*. The LVP is designed to support LCFS verification processes.

(1) *Eligibility.* Any entity providing verification services pursuant to section 95500 (Executive Officer accredited verification body) can request an account in LVP.

(2) *Requirements to Establish an Account in LVP.* A company owner, a president, a managing partner, a corporate officer, or any other person with binding legal authority must complete and submit the online LVP account registration form and provide the following:

(A) Organization name, address, state and country, Organization Federal Employer Identification Number (FEIN), date and place of incorporation.

(B) The online LVP registration form must designate a primary account representative and at least one alternate account representative.

The primary account representative and the alternate account representative(s) must attest in writing, as follows:

"I certify under penalty of perjury under the laws of the State of California as follows: I was selected as the primary account representative or the secondary account representative, as applicable, by an agreement that is binding on all persons who have the legal right to submit information on behalf of the verification body. I have all the necessary authority to carry out the duties and responsibilities contained in California Code of Regulations, title 17, sections 95480 et seq. on behalf of such persons and that each such person shall be fully bound by my representations, actions, inactions, or submissions and by any order or decision issued to me by the Executive Officer or a court regarding the account."

(C) For each representative, name, title, relationship to the organization, business and mobile phone, e-mail address, username, and password.

(D) The account representatives can be changed by following steps set forth in subsection (B) and (C) above. Notwithstanding any such change, all representations, actions, inactions, and submissions by the previous account representatives prior to the time and date when the Executive Officer receives the superseding information shall be binding on the entity.

(3) *Account Approval.*

(A) The account is established when the Executive Officer approves the application.

(B) Account registration application may be denied based on false, misleading or missing information.

(4) *Account Management Roles and Duties.*

(A) The account representative is responsible for making any changes to the company profile within LVP.

(B) The account representative may designate users within the company who can access and manage the account.

(C) The account representative is responsible for meeting the requirements as set forth in section 95500 through 95502.

(D) If any information required by section 95483.2(c)(2) changes, the entity holding the account must update the account to reflect the changes within 30 calendar days.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95483.3. Change of Ownership or Operational Control.

If an entity or a facility registered in the LRT-CBTS, the AFP, or the LVP undergoes a change of ownership or operational control, the following requirements apply.

(a) *CARB Notifications.* Within 30 days of the change of ownership or operational control, the previous owner or operator of the regulated entity or facility and the new owner or operator of the entity or facility must provide the following information to CARB:

(1) The previous owner or operator must notify CARB in writing of the ownership or operational control change, including the name of the new owner or operator and the date of the ownership or operational control change.

(2) The new owner or operator must notify CARB in writing of the ownership or operational control change, including the following information:

(A) Previous owner or operator;

(B) New owner or operator;

(C) Date of ownership or operator change;

(D) Name of new account representatives pursuant to section 95483.2 for the affected entity's account in the LRT-CBTS, AFP or LVP.

(3) The first owner must give the Executive Officer direction regarding the disposition of net credits in the first owner's LRT-CBTS account and the certified fuel pathways associated with the first owner's AFP account.

(b) *Reporting Responsibilities.* The owner or operator of record at the time of a reporting or verification deadline specified in this subarticle has the responsibility for complying with the requirements of this subarticle, including submitting

quarterly and annual reports, certifying that the reports are accurate and complete, obtaining verification services, and completing verification.

(1) Reported data must not be split or subdivided for a reporting period, based on ownership. A single reporting period data report must be submitted for the entity by the current owner or operator. This report must represent required data for the entire reporting period.

(2) Previous owners or operators are required to provide data and records to new owners or operators that is necessary and required for preparing quarterly and annual reports required by this article.

(c) *New Owner Responsible for Net Deficits.* The new owner, when filing the annual report, is responsible for demonstrating compliance pursuant to section 95485.

(d) *Bankruptcy*. Deficits constitute regulatory obligations under California law.

(e) *Fate of Credits After an Entity Dissolves.* The Executive Officer will place into the Buffer Account any net credits in the account of a party that dissolves or otherwise ceases to exist without notifying the Executive Officer pursuant to paragraph (3) of subdivision (a) of this section.

(f) *Fate of Deficits After an Entity Dissolves.* Prior to dissolution, a fuel reporting entity is responsible for retiring credits equal to any net deficits in its LRT-CBTS account and fulfill account closure requirements as set forth in section 95483.2(b)(7).

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95484. Annual Carbon Intensity Benchmarks.

(a) The Executive Officer's credit and deficit calculations, as described in Sections 95486 and 95486.1, will use the appropriate annual carbon intensity benchmarks set forth in Tables 1, 2, and 3 of this section.

(b) *Benchmarks for Gasoline and Fuels used as a Substitute for Gasoline*.

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

Table 1. LCFS Carbon Intensity Benchmarks for 2011 to 2030 for Gasoline and Fuels Used as a Substitute for Gasoline.

Year	*Average Carbon Intensity (gCO_2e/MJ)*	*Year*	*Average Carbon Intensity (gCO_2e/MJ)*
2010	Reporting Only		
2011*	95.61	2021	90.74
2012	95.37	2022	89.50
2013**	97.96	2023	88.25
2014	97.96	2024	87.01
2015	97.96	2025	85.77
2016***	96.50	2026	84.52
2017	95.02	2027	83.28
2018	93.55	2028	82.04
2019****	93.23	2029	80.80
2020	91.98	2030 and subsequent years	79.55

* The benchmarks for years 2011 and 2012 reflect reductions from base year (2010) CI values for CaRFG (95.85) calculated using the CI for crude oil supplied to California refineries in 2006.
** The benchmarks for years 2013 to 2015 reflect reductions from revised base year (2010) CI values for CaRFG (98.95) calculated using the CI for crude oil supplied to California refineries in 2010.
*** The benchmarks for years 2016 to 2018 reflect reductions from revised base year (2010) CI values for CaRFG (98.47).
**** The benchmarks for years 2019 to 2030 reflect reductions from revised base year (2010) CI values for CaRFG (99.44).

(c) *Benchmarks for Diesel Fuel and Fuels used as a Substitute for Diesel Fuel.*

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

Table 2. LCFS Carbon Intensity Benchmarks for 2011 to 2030 for Diesel Fuel and Fuels Used as a Substitute for Diesel Fuel.

Year	*Average Carbon Intensity (gCO_2e/MJ)*	*Year*	*Average Carbon Intensity (gCO_2e/MJ)*
2010	Reporting Only		
2011*	94.47	2021	91.66
2012	94.24	2022	90.41
2013**	97.05	2023	89.15
2014	97.05	2024	87.89
2015	97.05	2025	86.64
2016***	99.97	2026	85.38
2017	98.44	2027	84.13
2018	96.91	2028	82.87
2019****	94.17	2029	81.62
2020	92.92	2030 and subsequent years	80.36

* The benchmarks for years 2011 and 2012 reflect reductions from base year (2010) CI values for ULSD (94.71) calculated using the CI for crude oil supplied to California refineries in 2006.
** The benchmarks for years 2013 to 2015 reflect reductions from revised base year (2010) CI values for ULSD (98.03) calculated using the CI for crude oil supplied to California refineries in 2010.
*** The benchmarks for years 2016 to 2018 reflect reductions from revised base year (2010) CI values for ULSD (102.01).
**** The benchmarks for years 2019 to 2030 reflect reductions from revised base year (2010) CI values for ULSD (100.45).

(d) *Benchmarks for Fuels used as a Substitute for Conventional Jet Fuel.*

Table 3. LCFS Carbon Intensity Benchmarks for 2019 to 2030 for Fuels Used as a Substitute for Conventional Jet Fuel.

Year	*Average Carbon Intensity (gCO_2e/MJ)*
2019*	89.37

Year	***Average Carbon Intensity (gCO_2e/MJ)***
2020	89.37
2021	89.37
2022	89.37
2023	89.15
2024	87.89
2025	86.64
2026	85.38
2027	84.13
2028	82.87
2029	81.62
2030 and subsequent years	80.36

* The benchmarks reflect reductions from base year (2010) CI values for conventional jet fuel (89.37).

(e) *Carbon Intensity Benchmarks for an Alternative Fuel Other Than a Biomass-Based Diesel Fuel Intended for Use in a Vehicle.*

(1) The Executive Officer will use the benchmarks for gasoline set forth in section 95484(b) for credit and deficit calculations for any alternative fuel, other than biomass-based diesel fuel, if the alternative fuel is used or intended to be used in any single-fuel light- or medium-duty vehicle.

(2) The Executive Officer will use the benchmarks for diesel fuel set forth in section 95484(c) for credit and deficit calculations for any alternative fuel, other than biomass-based diesel fuel, that is used or intended to be used in any single-fuel application not identified in section 95484(e)(1).

(f) *Carbon Intensity Benchmarks for Biomass-Based Diesel Fuel.* The benchmark for diesel fuel, set forth in section 95484(c), applies to biomass-based diesel fuel is used or intended to be used in any:

(1) light-, medium-, or heavy-duty vehicle;

(2) off-road transportation application;

(3) off-road equipment application;

(4) locomotive or commercial harbor craft application; or

(5) non-stationary source application not otherwise specified in subsections (1) through (4) above.

(g) *Carbon Intensity Benchmarks for Transportation Fuels Intended for Use in Multi-Fuel Vehicles.*

(1) The Executive Officer's credit and deficit calculations involving alternative fuel provided for use in a multi-fueled vehicle use:

(A) the benchmarks for gasoline set forth in section 95484(b) if one of the fuels used in the multi-fuel vehicle is gasoline; or

(B) the benchmarks for diesel fuel set forth in section 95484(c) if one of the fuels used in the multi-fuel vehicle is diesel fuel.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95485. Demonstrating Compliance.

(a) *Compliance Demonstration.*

(1) A fuel reporting entity must demonstrate that it met its annual compliance obligation by submitting an annual compliance report, showing that it possessed and has retired a number of credits from its credit account that is equal to its compliance obligation.

(2) *Mandatory Retirement of Credits for the Purpose of Compliance.* At the time of annual compliance report submission, for a fuel reporting entity that possesses credits and has also incurred deficits, the LRT-CBTS will retire a sufficient number of credits so that:

(A) Enough credits are retired to completely meet the fuel reporting entity's compliance obligation for that compliance period, or

(B) If the total number of credits available in entity's account is less than the total number of deficits incurred, all the credits within entity's possession will be retired.

(b) *Calculation of Credit Balance and Annual Compliance Obligation.*

(1) *Compliance Period.* Beginning in 2011 and every year thereafter, the annual compliance period is January 1st through December 31st of each year.

(2) *Calculation of Compliance Obligation and Credit Balance at the End of a Compliance Period.* The Executive Officer will calculate each LRT-CBTS account holder's compliance obligation and credit balance at the end of a compliance period as follows:

$$ComplianceObligation = Deficits^{Generated} + Deficits^{CarriedOver}$$

$$CreditBalance = \left(Credits^{Generated} + Credits^{Acquired} + Credits^{Released} + Credits^{CarriedOver}\right) - \left(Credits^{Retired} + Credits^{Sold} + Credits^{OnHold} + Credits^{CCMPledge} + Credits^{Adjustments}\right)$$

where:

$Deficits^{Generated}$ are the deficits generated pursuant to sections 95486 and 95489 in the current compliance period;

$Deficits^{CarriedOver}$ are the deficits carried over from the previous compliance period and not deferred pursuant to section 95485(c);

$Credits^{Generated}$ are the credits generated pursuant to sections 95486 and 95489 in the current compliance period;

$Credits^{Aquired}$ are the credits purchased or otherwise acquired in the current compliance period, including carryback credits acquired pursuant to section 95486;

$Credits^{Released}$ are the credits released from the hold due to enforcement or administrative action;

$Credits^{CarriedOver}$ are the credits carried over from the previous compliance period;

$Credits^{Retired}$ are the credits retired within the LCFS in the current compliance period;

$Credits^{Sold}$ are the credits sold or otherwise transferred in the current compliance period;

$Credits^{OnHold}$ are the credits placed on hold due to enforcement or administrative action. While on hold these credits cannot be used for meeting an annual compliance obligation;

$Credits^{CCMPledge}$ are the credits pledged for the Credit Clearance Market and withheld from the ongoing LCFS market; and

$Credits^{Adjustments}$ are the credits adjusted or invalidated due to administrative or enforcement action.

(c) *Credit Clearance Market.*

(1) If a fuel reporting entity does not retire sufficient credits to meet its year-end compliance obligation under section 95485(a), that party must purchase its pro-rata share of credits in the Credit Clearance Market, if one occurs.

(A) *If the Credit Clearance Market occurs*, a fuel reporting entity that fails to comply with section 95485(a) is nevertheless in compliance if the party:

1. Retires all credits in its LRT-CBTS account;

2. Acquires its Pro-Rata Obligation in the Credit Clearance Market and retires that number of credits by July 31st of the year subsequent to the compliance year in question; and

3. Retires the remaining balance of its annual obligation, with interest, within five years.

(B) *If no Credit Clearance Market occurs*, the Executive Officer will record any entity's unmet compliance obligation, and the fuel reporting entity will be deemed in compliance for that year, provided that it has retired all credits in its account, and retires credits equivalent to the Accumulated Deficits, with interest as explained in section 95485(c)(5) below, within five years.

(2) *Acquisition of "Clearance Market" Credits to Meet an Annual Compliance Obligation.*

(A) *Clearance Market Period*. From June 1st to July 31st, a fuel reporting entity subject to section 95485(c)(1) must acquire credits pledged into the Credit Clearance Market to be retired toward

compliance in the previous compliance year. Credits acquired for this purpose are defined as "Clearance Market" credits.

(B) *Use of Clearance Market Credits.* A Clearance Market credit can only be used for the purpose of meeting the fuel reporting entity's compliance obligation from an immediate prior year.

(3) *Procedure for Selling in the Clearance Market.*

(A) *Call for Credits*. On the first Monday in April, the Executive Officer shall issue to all fuel reporting entities and credit generators a call for credits to be pledged for sale in the Clearance Market. When calling for credits, the Executive Officer will inform fuel reporting entities of that year's Maximum Price for Credits as determined in subsection (C) below.

(B) *Pledging Credits for Sale into the Clearance Market.* Fuel reporting entities and credit generators pledging credits for sale into the Clearance Market must report to the Executive Officer in the Annual Compliance Report (on or before April 30th) the number of credits they are pledging for sale.

(C) *Calculation of the Maximum Price for Credits in the Clearance Market.* The maximum price for credits acquired, purchased or transferred via the Credit Clearance Market shall be set by the following formula:

1. $200/credit (MT$CO_2$e) in 2016.

2. This per credit price shall be adjusted annually by the rate of inflation as measured by the most recently available twelve months of the Consumer Price Index for All Urban Consumers.

   "Consumer Price Index for All Urban Consumers" means a measure that examines the changes in the price of a basket of goods and services purchased by urban consumers, and is published by the U.S. Bureau of Labor Statistics.

(D) *Eligibility to Sell.* Only fuel reporting entities that demonstrated compliance pursuant to section 95485(a) for the prior year can pledge credits for sale into the Clearance Market. Fuel reporting entities that have an Accumulated Deficit obligation cannot pledge credits for sale into the Clearance Market.

(E) *Selling in the Clearance Market*. By pledging credits for sale in the Clearance Market, parties agree to the following provisions:

1. Parties pledging credits agree to withhold those credits from sale in the ongoing LCFS credit market until the Executive Officer determines whether a Clearance Market will occur and, if a Clearance Market will occur, until August 1st.

2. The Executive Officer will announce whether a Clearance Market will occur by May 15th of each year.

3. If the Executive Officer announces that a Clearance Market will not be held that year, parties who have pledged credits to the Clearance Market shall be released from their agreement to withhold those credits from sale in the ongoing LCFS credit market.

4. If a Clearance Market does occur, parties agree to sell or transfer credits at or below the Maximum Price for the pertinent year, until the Clearance Market closes on July 31st.

5. Parties that have pledged credits to sell into the Clearance Market cannot reject an offer to purchase pledged credits at the Maximum Price, provided they have not sold or contractually agreed to sell those pledged credits.

(4) *Clearance Market Operation*. The Executive Officer will inform each fuel reporting entity that failed to meet the Annual Compliance obligation under section 95485(a) of its pro-rata share of credits available into the Clearance Market by June 1st.

(A) *Calculation of Pro-Rata Shares.* Each fuel reporting entity's pro-rata share of credits available in the Clearance Market will be calculated by the following formula:

Fuel reporting entity A's pro-rata share =

$$\left[\frac{(A's\ deficit)}{(total\ deficits)}\right] \times [lesser\ of: (pledged\ credits)\ or\ (total\ deficits)]$$

where:

$deficit$ refers to one fuel reporting entity's obligation for the compliance year that has not been met pursuant to section 95485(a);

$total\ deficits$ refers to the sum of all fuel reporting entities' obligations for the compliance year that have not been met pursuant to section 95485(a); and

$pledged\ credits$ means the sum of all credits pledged pursuant to section 95485(c)(3).

(B) *Publishing a List of Entities Participating in the Clearance Market*. On or before June 1st, the Executive Officer will post the following information on the LCFS web site:

1. The name of each entity that did not meet the requirement of section 95485(a) and the number of credits that each entity is obligated to acquire as their pro-rata share; and

2. The name of each entity that has pledged to provide credits for sale in the credit clearance market and the number of credits that each party has agreed to provide.

(C) *Clearance Market Operation Period.* If the Executive Officer has determined the Clearance Market will occur, the Clearance Market will operate from June 1st through July 31st.

(D) *Submission of Amended Annual Compliance Reports*. Fuel reporting entities that purchased credits in the Clearance Market must submit to the Executive Officer an Amended Annual Compliance Report by August 31st that accounts for the acquisition and retirement of their pro-rata share of Clearance Market credits, and for all deficits carried over as Accumulated Deficits.

(E) *Accumulated Deficits.* If, after purchasing its pro-rata share of credits and retiring those credits, a fuel reporting entity retains an unmet compliance obligation, the Executive Officer shall record remaining deficits from that compliance year in the entity's account.

(5) *Rules Governing Accumulated Deficits.*

(A) *Compound Interest on Accumulated Deficits*. Fuel reporting entities with an Accumulated Deficit will be charged interest to be applied annually to all deficits in a fuel reporting entity's account. Interest will be applied on Accumulated Deficit from previous compliance years in terms of additional deficits that must be retired pursuant to section 95485(c)(1)(A) at a rate of 5 percent annually, applied on each September 1st.

(B) *Repayment of Accumulated Deficits.* Fuel reporting entities that participate in the Clearance Market in order to meet their compliance obligations must repay all deficits, plus interest no later than five years from the end of the compliance period in which any such deficit was incurred.

(C) *Restrictions on the Repayment of Accumulated Deficits.* Fuel reporting entities may repay Accumulated Deficits as part of a subsequent annual report. However, no repayment of any Accumulated Deficits is allowed unless the fuel reporting entity meets 100 percent of its current compliance obligation.

(D) *Prohibitions on Credit Transfers.* Fuel reporting entities that have an Accumulated Deficit obligation cannot transfer or sell credits to another fuel reporting entity.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95486. Generating and Calculating Credits and Deficits.

(a) *Generation and Acquisition of Transferrable Credits.*

(1) *Credit and Deficit Issuance.* Upon submission and acceptance of timely reports as required by this subarticle, the total number of credits and deficits generated will be issued in the LRT-CBTS account of the applicable credit or deficit generator. Once issued, credits may be retained indefinitely, retired to meet a compliance obligation, or transferred to other entities through the LRT-CBTS. The Executive Officer will issue the credits and deficits in the LRT-CBTS if:

(A) The credit or deficit generator met all the reporting requirements pursuant to this subarticle;

(B) The credit or deficit generator successfully reconciled the fuel quantity reported per FPC using transaction types Sold with Obligation and Purchased with Obligation with business partners by the quarterly reporting deadline, if required;

(C) The activity is not prohibited pursuant to section 95486(a)(2) or any other provision of this subarticle.

(2) *No Retroactive Credit Claim.* Unless expressly provided elsewhere in this subarticle, no credit generator may generate or claim credits retroactively for a period for which the reporting deadline has passed. Similarly, no deficit generator may eliminate deficits retroactively for a period for which the reporting deadline has passed.

(3) *Buffer Account.* The Executive Officer may create an LRT-CBTS account under the control of the Executive Officer. In this account, the Executive Officer may place:

(A) An equivalent number of credits for any LCFS credits that could have been claimed (or deficits that could have been eliminated) if reported timely, if not for the prohibition on retroactive credit claims in section 95486(a)(2).

(B) An equivalent number of credits representing the difference between the reported CI and the verified operational CI from annual Fuel Pathway Reports for each fuel pathway code reported with transaction types "Production in California", "Production for Import", and "Import" during a compliance year. These credits will be placed in the buffer account after August 31st for the prior compliance year and will be calculated according to the following equation:

$$Credits^{FPC}_{CI\ difference}\ (MT) = \left(Credits^{FPC}_{verified\ opertaional\ CI}\ (MT) - Credits^{FPC}_{reported\ CI}\ (MT)\right)$$

If $Credits^{FPC}_{CI\ difference} > 0$

where:

$Credits^{FPC}_{CI\ difference}$ is the number of credits representing the difference between the reported CI and verified operational CI for each fuel pathway code;

$Credits^{FPC}_{verified\ opertaional\ CI}$ is the number of credits calculated using $CI^{XD}_{verified\ opertional}$ instead of $CI^{XD}_{reported}$ in the equation in section 95486.1(a)(1). $CI^{XD}_{verified\ opertional}$ is determined by the Executive Officer on the basis of the annual Fuel Pathway Reports pursuant to section 95488.10 for each fuel pathway code; and

$Credits^{FPC}_{reported\ CI}$ is the number of credits calculated using equation in section 95486.1(a)(1) for each fuel pathway code;

(C) Contribution from CCS projects pursuant to the CCS Protocol.

(D) All net credits remaining in any deactivated LRT-CBTS accounts.

(E) The Executive Officer may retire credits in the Buffer Account to address the invalidation of credits, pursuant to section 95495, if the person responsible for the invalidated credits no longer exists or is otherwise unavailable to reimburse the program.

(4) The Executive Officer may, at the time of credit generation or credit transfer, assign a unique identification number to each credit. Credits are subject to review and audit by the Executive Officer or his designee, and credits may be invalidated or adjusted as necessary pursuant to section 95495.

(5) *Acquisition of "Carryback" Credits to Meet Obligation.*

(A) *Carryback Credit Acquisition Period*. A fuel reporting entity may acquire, via purchase or transfer, additional credits between January 1st and April 30th ("carryback period") to be used for meeting the compliance obligation of the year immediately prior to the carryback period. Credits acquired for this purpose are defined as "carryback" credits. All carryback credit transfers must be completed in the LRT-CBTS pursuant to section 95487(b) by April 30th in order to be valid for meeting the compliance obligation of the year immediately prior.

(B) *Use of Carryback Credits*. A carryback credit may be used for the purpose of meeting the compliance of an immediate prior year if all of the conditions below are met:

1. The credit was acquired during the carryback period;

2. The credit was generated in a compliance year prior to the carryback period;

3. A fuel reporting entity electing to use carryback credits must identify the number of credits it desires to use as carryback credits in its annual compliance report submitted to the Executive Officer no later than April 30th of the year in which the carryback credits were obtained; and

4. A fuel reporting entity electing to use carryback credits must:

a. Acquire and retire a sufficient amount of carryback and other credits to meet 100 percent of its compliance obligation in the prior compliance year, or

b. Minimize its compliance shortfall by retiring all credits in its possession at the end of the previous compliance year, as well as all credits purchased during the carryback period that are eligible to be used as carryback credits.

(b) *Calculation of Credits and Deficits Generated.* The Executive Officer will calculate the number of credits and deficits generated within the LRT-CBTS using the methods specified in section 95486.1 and section 95489. The total credits and deficits generated are used in determining the overall credit balance for a compliance period, pursuant to section 95485. All credits and deficits are denominated in units of metric tons (MT) of carbon dioxide equivalent.

(1) All LCFS fuel quantities used for credit calculation using fuel pathways are in energy units of megajoules (MJ).

Fuel quantities denominated in other units, such as those shown in Table 4, are converted to MJ in the LRT-CBTS by multiplying by the corresponding energy density[1]:

[1] Energy density factors are based on the lower heating values of fuels in CA-GREET3.0 using BTU to MJ conversion of 1055.06 J/Btu.

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

Table 4. Energy Densities and Conversion Factors for LCFS Fuels and Blendstocks.

Fuel (units)	*Energy Density*
CARBOB (gal)	119.53 (MJ/gal)
CaRFG (gal)	115.83 (MJ/gal)
Diesel fuel (gal)	134.47 (MJ/gal)
LNG (gal)	78.83 (MJ/gal)
CNG (Therms)	105.5 (MJ/Therm)
Electricity (KWh)	3.60 (MJ/KWh)
Hydrogen (kg)	120.00 (MJ/kg)
Undenatured Anhydrous Ethanol	80.53 (MJ/gal)
Denatured Ethanol (gal)	81.51 (MJ/gal)
FAME Biodiesel (gal)	126.13 (MJ/gal)
Renewable Diesel (gal)	129.65 (MJ/gal)
Alternative Jet Fuel (gal)	126.37 (MJ/gal)
Propane (LPG) (gal)	89.63 (MJ/gal)

(2) The total credits and deficits generated by a credit or deficit generator in a compliance period will be calculated as follows:

$$Credits^{Gen}(MT) = \sum_{i}^{n} Credits_i^{gasoline} + \sum_{i}^{n} Credits_i^{diesel} + \sum_{i}^{n} Credits_i^{jet} + \sum_{i}^{n} Credits_i^{projects}$$

$$Deficits^{Gen}(MT) = \sum_{i}^{n} Deficits_i^{gasoline} + \sum_{i}^{n} Deficits_i^{diesel}$$

where:

$Credits^{Gen}$ represents the total credits (a zero or positive value), in units of metric tons (MT), for all fuels and blendstocks determined from the credits generated under the gasoline, diesel, and jet fuel annual carbon intensity benchmarks, and from opt-in projects, if applicable;

$Deficits^{Gen}$ represents the total deficits (a negative value), in MT, for all fuels and blendstocks determined from the deficits generated under either or both of the gasoline and diesel fuel annual carbon intensity benchmarks;

i is the finished fuel or blendstock index; and

n is the total number of finished fuels and blendstocks provided by a credit or deficit generator in a compliance period.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95486.1. Generating and Calculating Credits and Deficits Using Fuel Pathways.

(a) *General Calculation of Credits and Deficits Using Fuel Pathways*. LCFS credits or deficits for each fuel or blendstock for which a fuel reporting entity is the credit or deficit generator will be calculated according to the following equations:

(1) $$Credits_i^{XD}/Deficits_i^{XD}(MT) = \left(CI_{standard}^{XD} - CI_{reported}^{XD}\right) \times E_{displaced}^{XD} \times C$$

where:

$Credits_i^{XD}/Deficits_i^{XD}(MT)$ is either the number of LCFS credits generated (a zero or positive value), or deficits incurred (a negative value), in metric tons, by a fuel or blendstock under the average carbon intensity requirement for gasoline (XD = "gasoline"), diesel (XD = "diesel"), or jet fuel (XD = "jet");

$CI_{standard}^{XD}$ is the average carbon intensity requirement of either gasoline (XD = "gasoline"), diesel (XD = "diesel"), or jet fuel (XD = "jet") for a given year as provided in sections 95484(b), (c) and (d), respectively;

$CI_{reported}^{XD}$ is the adjusted carbon intensity value of a fuel or blendstock, in gCO_2e/MJ, calculated pursuant to section 95486.1(a)(2);

$E_{displaced}^{XD}$ is the total quantity of gasoline (XD = "gasoline), diesel (XD = "diesel"), or jet (XD = "jet") fuel energy displaced, in MJ, by the use of an alternative fuel, calculated pursuant to section 95486.1(a)(3); and

C is a factor used to convert credits to units of metric tons from gCO_2e and has the value of:

$$C = 1.0x10^{-6} \frac{(MT)}{(gCO_2e)}$$

(2) $CI_{reported}^{XD} = \frac{CI_i}{EER^{XD}}$

where:

CI_i is the carbon intensity of the fuel or blendstock, measured in gCO_2e/MJ, determined by a CA-GREET pathway or a custom pathway and incorporates a land use modifier (if applicable); and

EER^{XD} is the dimensionless Energy Economy Ratio (EER) relative to gasoline (XD = "gasoline"), diesel (XD = "diesel"), or jet fuel (XD = "jet") as listed in Table 5. For a vehicle-fuel combination not listed in Table 5, $EER^{XD} = 1$ must be used unless an applicant is granted certification of an EER-adjusted CI value pursuant to section 95488.7(a)(3).

(3) $E_{displaced}^{XD} = E_i \times EER^{XD}$

where:

E_i is the energy of the fuel or blendstock, in MJ, determined from the energy density conversion factors in Table 4, except as noted in subsection (4) below.

(4) For Fixed Guideway Systems and Forklifts:

$E_{displaced}^{XD} = E_i$

where:

E_i is the energy of the fuel used to propel fixed guideway systems, electric forklifts, and hydrogen fuel cell forklifts. For fixed guideway system expansion beyond 2010, and for electric and hydrogen fuel cell forklifts with model year 2011 or later, the formula for displaced energy in section 95486.1(a)(3) may be used with Executive Officer approval.

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

Table 5. EER Values for Fuels Used in Light- and Medium-Duty, and Heavy-Duty Applications.

Light/Medium-Duty Applications (Fuels used as gasoline replacement)		***Heavy-Duty/Off-Road Applications (Fuels used as diesel replacement)***		***Aviation Applications (Fuels used as jet fuel replacement)***	
Fuel/Vehicle Combination	***EER Values Relative to Gasoline***	***Fuel/Vehicle Combination***	***EER Values Relative to Diesel***	***Fuel/Vehicle Combination***	***EER Values Relative to Conven-tional Jet***
Gasoline (incl. E6 and E10) Or E85 (and other ethanol blends)	1	Diesel fuel Or Biomass-based diesel blends	1	Alternative Jet Fuel	1
CNG/ICEV	1	CNG or LNG (Spark-Ignition Engines)	0.9		
		CNG or LNG (Compression-Ignition Engines)	1		
Electricity/BEV, or PHEV	3.4	Electricity/BEV or PHEV* Truck or Bus	5.0		
		Electricity/Fixed Guideway, Heavy Rail	4.6		
		Electricity/Fixed Guideway, Light Rail	3.3		
On-Road Electric Motorcycle	4.4	Electricity/Trolley Bus, Cable Car, Street Car	3.1		
		Electricity Forklifts	3.8		
		eTRU	3.4		
		eCHE	2.7		
		eOGV	2.6		

H2/FCV	2.5	H2/FCV H2 Fuel Cell Forklifts	1.9 2.1	
Propane	1.0	Propane	0.9	

*BEV = battery electric vehicle, PHEV= plug-in hybrid electric vehicle, FCV = fuel cell vehicle, ICEV = internal combustion engine vehicle.

(b) *Credit and Deficit Generation Frequency Using Fuel Pathways.* Unless expressly provided elsewhere in this subarticle, credits and deficits for fuel transactions reported each quarter will be generated in LRT-CBTS accounts upon completion of the reporting period for the given quarter, if all the conditions set forth in section 95486(a)(1) are met.

(c) *Calculation of Credits for EV Charging Using Fuel Pathways.*

(1) *Base Credits to EDUs.* "Base Credit" refers to the credit generated by an EDU for electricity using carbon intensity values provided in the Lookup Table pathway for California Average Grid Electricity and the credit calculation in 95486.1(a).

(A) *Determining Quantity of Electricity.* For calculating base credits to EDUs, the quantity of electricity must be determined as follows:

1. *For Non-Metered Residential EV Charging.* The Executive Officer will use the following method to calculate the quantity of electricity used for non-metered residential charging:

$$Electricity^{EV}_{Non\ metered} = N^{EV}_{Non\ metered} \times Electricity^{EV}_{Daily\ Average} \times T^{days}_{reporting\ period}$$

where:

$Electricity^{EV}_{Non\ metered}$ is the total estimated electricity use in kWh of non-metered residential plug-in electric vehicles assigned to the EDU for the reporting period;

$N^{EV}_{Non\ metered}$ is the total number of non-metered residential EVs within a given EDU service area for the reporting period;

$Electricity^{EV}_{Daily\ Average}$ is the quantity in kWh of electricity used daily for residential charging of EVs, based upon the best data available to the Executive Officer, during the reporting period;

$T^{days}_{reporting\ period}$ is the total number of days in the reporting period.

2. Using the equation in subsection 1. above, the Executive Officer may also calculate, based upon the best data available, the quantity of non-metered electricity used in residential EV charging within service areas for which the EDU has not opted in. The Executive Officer may then assign a pro-rata share of this quantity of electricity to each EDU that has opted-in using the $N^{EV}_{Non\ metered}$ values as the basis of this proration.

3. *For Metered Residential EV Charging.* The EDU may demonstrate the quantity of electricity for the purposes of calculating the base credits for metered charging at residences through timely submission of Quarterly Fuel Transaction Reports based on meter records.

(B) *Calculation of Base Credits.* The Executive Officer will use the quantity of electricity as determined in subsection (A) above to calculate the base credit using the Lookup Table pathway CI value for California Average Grid Electricity and the credit generation equation provided in section 95486.1(a).

(C) Credits calculated and generated pursuant to subsection (B) above are exempt from the credit generation requirements pursuant to sections 95486(a)(2) and 95486.1(b).

(2) *Incremental Credits for Residential EV Charging.* "Incremental Credit" refers to any credits generated in addition to the base credits generated by an EDU pursuant to subsection (1)(B) above, for the same electricity, using the calculation in subsection (2)(B), below.

(A) *Quantity of Electricity.*

1. *Non-Metered Residential EV Charging.* The Executive Officer shall use the formula in 95486.1(c)(1)(A) for calculating the quantity of electricity eligible to generate incremental credits for each residence that has an electric vehicle that is not separately metered and is shown to receive low-CI electricity, and is not claimed by another generator of incremental low-CI electricity credits using metered data.

2. *Metered Residential EV Charging for Incremental Credits.* Any entity generating incremental credit for metered

residential EV charging must supply the quantity of electricity through timely submission of Quarterly Fuel Transaction Reports based on meter records.

(B) *Calculation of Incremental Credits.* Incremental credits for residential EV charging, including either low-CI electricity or smart charging, and incremental credits for smart electrolysis pathways, must be calculated according to the following equation:

$$Credits_i(MT) = \left(CI_{grid\ average} - CI_{reported}\right) \times Electricity \times C$$

where:

$Credits_i(MT)$ is the number of incremental LCFS credits generated (a zero or positive value), in metric tons, for improvements in carbon intensity of electricity supplied to residential EV charging or for hydrogen production using electrolysis compared to the grid-average carbon intensity;

$CI_{grid\ average}$ is the carbon intensity of California Average Grid Electricity pathway certified by the Executive Officer for a given year, or the applicable region's average grid electricity for hydrogen imported to California;

$CI_{reported}$ is the adjusted carbon intensity of electricity, in gCO_2e/MJ, as calculated for a certified Tier 2 pathway or a Lookup Table pathway, including smart charging or smart electrolysis pathways;

$Electricity$ is the total quantity of either low-CI electricity supplied for EV charging, or electricity supplied for smart charging or smart electrolysis and reported by hourly windows, in MJ, determined from the energy density conversion factors in Table 4; and

C is a factor used to convert credits to units of metric tons from gCO_2e and has the value of:

$$C = 1.0x10^{-6}\frac{(MT)}{(gCO_2e)}$$

(d) *Calculation of Credits for Non-Residential EV Charging Using Fuel Pathways.* The base and incremental framework does not apply to non-residential EV charging. Only one entity per FSE may claim credits for non-residential metered EV charging.

(1) An entity may generate credits for Non-Residential EV charging using a carbon intensity for California Average Grid Electricity, Zero-CI Electricity, or Smart Charging pathway from the Lookup Table in section 95488.5, or a carbon intensity value certified through the Tier 2 pathway application process, and the credit calculation in 95486.1(a).

(e) *Calculation of Credits for Other Electricity used as Transportation Fuel Using Fuel Pathways.* An entity may generate credits for the non-EV charging applications listed in sections 95483(c)(3) to (6), which use electricity to displace conventional transportation fuel, using a carbon intensity for California Average Grid Electricity or Zero-CI Electricity from the Lookup Table 7-1 in section 95488.5, or a carbon intensity value certified through the Tier 2 pathway application process, and the credit calculation in 95486.1(a).

(f) *Calculation of Credits for Hydrogen Using Fuel Pathways.*

(1) An entity may generate credits for hydrogen used as a transportation fuel using a carbon intensity for hydrogen found in the Lookup Table in section 95488.5, or a carbon intensity value certified through the Tier 2 pathway application process, and the credit calculation in 95486.1(a).

(2) *Smart Electrolysis Pathways for Hydrogen Production.* An entity can generate incremental credits, in addition to credits generated under a pathway for electrolytic hydrogen produced using average grid electricity, for hydrogen using smart electrolysis pursuant to section 95488.5 and the incremental credit calculation in section 95486.1(c)(2)(B).

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95486.2. Generating and Calculating Credits for ZEV Fueling Infrastructure Pathways.

(a) *Hydrogen Refueling Infrastructure (HRI) Pathways.*

(1) *HRI Pathway Eligibility.* A hydrogen station owner may submit an application to certify an HRI pathway subject to the following eligibility conditions:

(A) The proposed HRI must be located in California and open to the public.

(B) The HRI pathway application must be received on or before December 31, 2025.

(C) The following stations are not eligible for HRI crediting:

1. Any station receiving or spending funds pursuant to any settlement related to any California or Federal regulation enforcement; or

2. Any station built as a required mitigation measure pursuant to the California Environmental Quality Act.

(2) *HRI Application Requirements.* For each hydrogen refueling station, the station owner must submit an application in the LRT-CBTS containing the following information:

(A) Name and address of the owner of the proposed station.

(B) Contact person for the owner entity.

1. Name
2. Title or position
3. Phone number
4. Mobile phone number
5. Email address

(C) Name, street address, latitude, longitude and a location description for the proposed station.

(D) Expected daily permitted hours of operation for the station. If the daily permitted hours are less than 24 hours, the applicant must provide documentation from a permitting authority demonstrating that daily permitted hours for the station are limited.

(E) The station nameplate refueling capacity for the permitted hours of operation calculated using the HySCapE 1.0 model or an equivalent model or capacity estimation methodology approved by the Executive Officer. The applicant must submit a completed model with the application.

(F) The HRI refueling capacity for the station is the nameplate refueling capacity determined in subsection (E) above or 1,200 kg/day, whichever is less.

(G) The number of dispensing units at the station.

(H) Expected source(s) of hydrogen, CI value(s), and method(s) used for delivery.

(I) Expected date that the station will be operational.

(J) Justification for the station location and how the proposed location contributes in developing a hydrogen refueling station network to support ZEV adoption. The justification must include:

1. The role(s) the station location will play in the developing hydrogen station network;
2. The means by which the station contributes to robust growth of the statewide hydrogen fueling network;
3. Demonstration of potential for consistent and calculable hydrogen demand;
4. Demonstration that the proposed station capacity is an appropriate capacity based on documented, verifiable, and reproducible projections of daily hydrogen demand at the proposed location;
5. Calculation of the projected trajectory of annualized average station utilization (calculated as annual throughput divided by annual station capacity) at the proposed location; and
6. Demonstration that the proposed station location has been discussed with local authorities having jurisdiction and no early roadblocks have been identified.

(K) A signed attestation letter from the applicant attesting to the veracity of the information in the application packet. The attestation letter must be submitted as an electronic copy, be on company letterhead, be signed by an officer of the applicant with authority to attest to the veracity of the information in the application and to sign on behalf of the applicant, be from the applicant and not from an entity representing the applicant (such as a consultant or legal counsel), and include the following attestation:

I, an authorized representative of _____ (applicant entity), attest to the veracity of the information submitted as part of the Hydrogen Refueling Infrastructure (HRI) application, attest that the proposed FSE is not receiving funds pursuant to any enforcement settlement related to any California or Federal regulation, and declare that the information submitted accurately represents the anticipated and intended design and operation of the hydrogen refueling station. Further, I understand and agree to each of the statements in the attached application. I am a duly authorized officer with authority to attest to the veracity of the information in the application and to sign on behalf of the respective applicant.

I understand that the following information in the HRI application will be made available on the LCFS web site: Name of the Applicant Entity, Station Name, Station Address, Number of Dispensing Units, HRI Refueling Capacity, and Effective Date Range for HRI Crediting.

By submitting this application, _____(applicant entity) accepts responsibility for the information herein provided to CARB. I certify under penalty of perjury

under the laws of the State of California that I have personally examined, and am familiar with, the statements and information submitted in this document. I certify that the statements and information submitted to CARB are true, accurate, and complete.

Signature	Print Name & Title	Date

(L) CBI must be designated pursuant to the requirements described in section 95488.8(c).

(M) An application and supporting documents must be submitted electronically via the LRT-CBTS unless the Executive Officer has approved or requested in writing another format.

(3) *Application Approval Process.*

(A) The HRI application must be approved by the Executive Officer before the station owner may generate hydrogen refueling infrastructure credits. If estimated potential HRI credits from all approved stations exceed 2.5 percent of deficits in the prior quarter, the Executive Officer will not approve additional HRI pathways and will not accept additional applications until estimated potential HRI credits are less than 2.5 percent of deficits. HRI applications will be evaluated for approval on a first come, first served basis.

Estimated potential HRI credits will be calculated using the following equation:

$$Credits_{HRI}^{Potential} = Credits_{HRI}^{Prior\ qtr} \times \frac{Cap_{HRI}^{Approved}}{Cap_{HRI}^{Operational}}$$

where:

$Credits_{HRI}^{Potential}$ means the estimated potential HRI credits from all approved HRI stations;

$Credits_{HRI}^{Prior\ qtr}$ means the total HRI credits generated by operational stations in the prior quarter;

$Cap_{HRI}^{Operational}$ means the total HRI capacity of stations that were operational in the prior quarter; and

$Cap_{HRI}^{Approved}$ means the total HRI capacity of all approved stations, both operational and nonoperational.

(B) After receipt of an application designated by the applicant as ready for formal evaluation, the Executive Officer will advise the applicant in writing either that:

1. The application is complete, or

2. The application is incomplete, in which case the Executive Officer will identify which requirements of section 95486.2(a)(2) have not been met.

   a. The applicant may submit additional information to correct deficiencies identified by the Executive Officer.

   b. If the applicant is unable to achieve a complete application within 180 days of the Executive Officer's receipt of the original application, the application will be denied on that basis, and the applicant will be informed in writing.

3. At any point during the application evaluation process, the Executive Officer may request in writing additional information or clarification from the applicant.

(C) The Executive Officer will not approve an application if the Executive Officer determines, based upon the information submitted in the application and any other available information, that the application does not meet requirements in subsections 95486.2(a)(1) and (a)(2). The Executive Officer may reject an application if satisfactory justification is not provided for station location pursuant to subsection 95486.2(a)(2)(J). If the Executive Officer does not approve the application, the applicant will be notified in writing and the basis for the disapproval shall be identified.

(D) If the Executive Officer determines that the applicant and application have met all requirements for approval pursuant to subsections 95486.2 (a)(1) and (a)(2), the Executive Officer will approve the application and provide an approval summary on the LCFS website including the station location and assigned identifier, number of dispensing units, HRI refueling capacity, and effective date range for HRI pathway crediting.

(E) *Crediting Period.* HRI crediting is limited to 15 years starting with the quarter following Executive Officer approval of the application.

(4) *Requirements to Generate HRI Credits.* To generate credits using HRI pathways the station must meet the following conditions. The station owner must maintain, and submit to CARB upon request, records demonstrating adherence to these conditions.

(A) The station owner must update the HRI refueling capacity if different from the design HRI refueling capacity provided in the application. Any station design or operational information that deviates from the original application must be declared to the Executive Officer, and a new attestation must be submitted pursuant to 95486.2(a)(2).

(B) The station must be open to the public, meaning that no obstructions or obstacles exist to preclude vehicle operators from entering the station premises, no access cards or personal identification (PIN) codes are required for the station to dispense fuel, and no formal or registered station training shall be required for individuals to use the hydrogen refueling station.

(C) The station uses a public point of sale terminal that accepts major credit and debit cards.

(D) The station is connected to the Station Operational Status System (SOSS), is listed open for retail, and:

1. The station passed final inspection by the appropriate authority having jurisdiction and has a permit to operate.

2. The station owner has fully commissioned the station, and has declared it fit to service retail FCV drivers. This includes the station owner's declaration that the station meets an appropriate SAE fueling protocol.

3. At least three OEMs have confirmed that the station meets protocol expectations, and their customers can fuel at the station.

4. All dispensers installed in the hydrogen refueling station have undergone type evaluation according to the California Type Evaluation Program (CTEP) administered by the California Department of Food and Agriculture/Division of Measurement Standards (CDFA/DMS) and have either a Temporary Use Permit or a type approval Certificate of Approval issued by CDFA/DMS.

(E) The FSE registration must be completed pursuant to section 95483.2(b)(8) and the quantity of dispensed hydrogen must be reported as required in section 95491.

(F) Dispensed hydrogen meets the following CI and renewable content requirements on a company-wide, weighted average basis. The Executive Officer will consider all the stations registered by an entity with a unique FEIN in the LRT-CBTS for calculating the company-wide weighted average CI and renewable content.

1. CI of 150 gCO_2e/MJ or less, and

2. Renewable content of 40 percent or greater.

(G) The station must be operational within 24 months of application approval. If the applicant fails to demonstrate the operability within 24 months of approval then the application will be canceled. The applicant can reapply for the same station eligible only for 10 years of crediting.

(5) *Calculation of HRI Credits.* HRI credits will be calculated using the following equation:

$$Credits_{HRI}\ (MT) = (CI_{standard}^{XD} \times EER - CI_{HRI}) \times E_{H2} \times \left(Cap_{HRI} \times N \times UT - H2_{disp}\right) \times C$$

where:

$CI_{standard}^{XD}$ is the average carbon intensity requirement of gasoline (XD = "gasoline") for a given year as provided in sections 95484(b);

EER is the dimensionless Energy Economy Ratio for H2/FCV relative to gasoline as listed in Table 5;

CI_{HRI} is the carbon intensity used for HRI crediting. Company-wide weighted average CI for dispensed hydrogen during the quarter or 0 g/MJ, whichever is greater;

E_{H2} is the energy density for hydrogen in MJ/kg as listed in Table 4;

Cap_{HRI} is the HRI refueling capacity for the station (kg/day);

UT is the the uptime multiplier which is the percentage of time that the station is available as reported to SOSS during the quarter;

$H2_{disp}$ is the quantity of hydrogen dispensed during the quarter (kg);

N is the number of days during the quarter;

C is a factor used to convert credits to units of metric tons from gCO_2e and has the value of:

$$C = 1.0x10^{-6}\frac{(MT)}{(gCO_2e)}$$

(6) *Reporting and Recordkeeping Requirements.* The following must be reported to the Executive Officer each quarter as set forth in section 95491 before credits will be issued to the LRT account associated with an approved HRI pathway.

(A) Station availability. This is the percentage of hours the station is available for fueling during the quarter relative to the permitted hours of operation for the station, as reported to the SOSS. Any period of time that SOSS reports that a portion of the station capacity is not available will count as a pro-rated amount of station availability, proportional to the percentage of the station capacity that remains available for fueling for this period of time.

(B) Company-wide, weighted average renewable content (percent) for dispensed hydrogen.

(C) Cost and revenue data. Provide a quarterly account of the following costs borne and revenues received by the station owner up through the most recent reporting quarter per station.

1. Total capital expenditures ($)
2. Total delivered cost ($) of hydrogen and average delivered cost ($/kg) for hydrogen
3. Total maintenance costs ($)
4. Total land rental cost ($)
5. Total grant revenue or other external funding received towards capital expenditures ($)
6. Total grant revenue or other external funding received towards operational and maintenance expenditures ($)
7. Total revenue ($) received from sale of hydrogen and average retail price ($/kg) for hydrogen sold
8. Other operational expenditures ($)

(7) *Applications for Expanded HRI Refueling Capacity.* Station owners who expand the capacity of a station and that is already generating HRI credits under the LCFS must submit an application to the Executive Officer to generate additional credits based on the updated capacity. Applications for expanded station capacity must be received before December 31, 2025 and do not extend the effective date range for the HRI crediting specified upon initial project approval in 95486.2(a)(3)(D). The application must include the following elements.

(A) In order to be eligible to generate HRI credits for expanded capacity, the station owner must demonstrate that station throughput in a reporting quarter is greater than or equal to 50 percent of the original approved HRI refueling capacity.

(B) Updated nameplate refueling capacity and updated HRI refueling capacity.

(C) If the sources of hydrogen and delivery methods stated in the original HRI application will change as a result of the added capacity, the station owner must disclose the new hydrogen sources and delivery methods.

(D) The station owner must maintain records demonstrating that any new equipment added as a result of the expansion in capacity, including storage and fueling dispensers, meet the requirements listed in 95486.2(a).

(b) *DC Fast Charging Infrastructure (FCI) Pathways.*

(1) *FCI Pathway Eligibility.* An FSE owner may submit an application to receive an FCI pathway subject to the following eligibility conditions:

(A) The proposed FSE must be located in California and open to the public for charging.

(B) Upon an individual applicant's estimated potential FCI credits, calculated pursuant to section 95486.2(b)(3)(B), exceeding 0.5 percent of the deficits in the prior quarter, each additional site applied for by the applicant must meet the following requirements:

1. Charging equipment at the site must support at least two of the following three fast charging connectors: CHAdeMO, SAE CCS, and/or Tesla;
2. The site must have at least one FSE with a CHAdeMO connector protocol and at least one FSE with an SAE CCS connector protocol; and

3. No more than three-quarters of all FSE subject to this provision at the site can support only a single fast charging connector protocol.

(C) The FCI pathway application must be received on or before December 31, 2025.

(D) The following FSE are not eligible for FCI crediting:

1. Any FSE that is permitted to operate prior to January 1, 2019; or
2. Any FSE receiving or spending funds pursuant to any settlement related to any California or Federal regulation enforcement; or
3. Any FSE built as a required mitigation measure pursuant to the California Environmental Quality Act.

(E) Each FSE must have a minimum nameplate power rating of 50 kW.

(F) Each FSE must be networked and capable of monitoring and reporting its availability for charging.

(2) *FCI Application Requirements.* The applicant must submit an application in the LRT-CBTS containing the following information:

(A) Name and address of the owner of the proposed FSE.

(B) Contact person for the owner entity.

1. Name
2. Title or position
3. Phone number
4. Mobile phone number
5. Email address

(C) Name, street address, latitude, longitude and a location description for each proposed FSE site.

(D) The number of FSEs.

(E) The nameplate power rating (kW), connector type(s), and model for each FSE.

1. The total nameplate power rating for all FSE at a single site claiming FCI credit under this provision cannot exceed 2,500 kW.

2. Notwithstanding 95486.2(b)(2)(E)1 above, upon request the Executive Officer may approve an application with total nameplate power rating for all FSE at a single site up to 6,000 kW. 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 pathways. The applicant must provide justification for requesting a total power rating greater than 2,500 kW at the given site.

(F) The effective simultaneous power rating (kW) for each FSE calculated using the equation below. The effective simultaneous power rating must be at least 50 percent of the nameplate power rating for each FSE.

$$P_{Sim}^{i} = P_{NP}^{i} \times \frac{P_{Sim}^{Tot}}{\sum_{i=1}^{n} P_{NP}^{i}}$$

where:

P_{Sim}^{i} is the simultaneous power rating (kW) for FSE i;

P_{NP}^{i} is the nameplate power rating (kW) for FSE i;

P_{Sim}^{Tot} is the maximum total power (kW) that can be delivered to all FSEs at a single site when they are operated simultaneously; and

n is the number of FSEs at a single site.

(G) The FCI charging capacity for each FSE calculated using the following equation:

$$Cap_{FCI}^{i} = 43 \times (P_{FCI}^{i})^{0.45}$$

where:

Cap_{FCI}^{i} is the FCI charging capacity (kWh/day) for the FSE i; and

P_{FCI}^{i} is the nameplate power rating for the FSE or 350 kW, whichever is less.

(H) Expected date that the FSE will be operational.

(I) Expected daily permitted hours of operation for the site. If the daily permitted hours are less than 24 hours, the applicant must provide documentation from a permitting authority demonstrating that daily permitted hours for the FSE are limited.

(J) A signed attestation letter from the applicant attesting to the veracity of the information in the application packet. The attestation letter must be submitted as an electronic copy, be on company letterhead, be signed by an officer of the applicant with authority to attest to the veracity of the information in the application and to sign on behalf of the applicant, be from the applicant and not from an entity representing the applicant (such as a consultant or legal counsel), and include the following attestation:

I, an authorized representative of _____ (proposed FSE owner entity), attest to the veracity of the information submitted as part of the DC Fast Charging Infrastructure (FCI) application, attest that the proposed FSE is not receiving funds pursuant to any enforcement settlement related to any California or Federal regulation, and declare that the information submitted accurately represents the anticipated and intended design and operation of the charging infrastructure. Further, I understand and agree to each of the statements in the attached application. I am a duly authorized officer with authority to attest to the veracity of the information in the application and to sign on behalf of the respective applicant.

I understand that the following information in the FCI application will be made available on the LCFS web site: Name of the Applicant Entity, Site Name, Site Address, Number and Type of Charging Units, Nameplate and Effective Simultaneous Power Rating for Each Unit, and Effective Date Range for FCI Crediting

By submitting this application, _____(applicant entity) accepts responsibility for the information herein provided to CARB. I certify under penalty of perjury under the laws of the State of California that I have personally examined, and am familiar with, the statements and information submitted in this document. I certify that the statements and information submitted to CARB are true, accurate, and complete.

(K) CBI must be designated pursuant to the requirements described in section 95488.8(c).

(L) An application and supporting documents must be submitted electronically via the LRT-CBTS unless the Executive Officer has approved or requested in writing another format.

(3) *Application Approval Process.*

(A) The FCI application must be approved by the Executive Officer before the applicant may generate FCI credits. If estimated potential FCI credits from all approved FSEs exceed 2.5 percent of deficits in the prior quarter, the Executive Officer will not approve additional FCI pathways and will not accept additional applications until FCI credits are less than 2.5 percent of deficits. FCI

applications will be evaluated for approval on a first come, first served basis.

Estimated potential FCI credits will be calculated using the following equation:

$$Credits_{FCI}^{Potential} = Credits_{FCI}^{Prior\ qtr} \times \frac{Cap_{FCI}^{Approved}}{Cap_{FCI}^{Operational}}$$

where:

$Credits_{FCI}^{Potential}$ means the estimated potential FCI credits from all approved FSEs;

$Credits_{FCI}^{Prior\ qtr}$ means the total FCI credits generated by operational FSEs in the prior quarter;

$Cap_{FCI}^{Operational}$ means the total FCI charging capacity of FSEs that were operational in the prior quarter; and

$Cap_{FCI}^{Approved}$ means the total FCI charging capacity of all approved FSEs, both operational and nonoperational.

(B) The estimated potential FCI credits for an individual applicant will be calculated using the same equation as in subsection (A) above, where:

$Credits_{FCI}^{Potential}$ means the estimated potential FCI credits from the applicant's approved FSEs;

$Credits_{FCI}^{Prior\ qtr}$ means the total FCI credits generated by the applicant for operational FSEs in the prior quarter;

$Cap_{FCI}^{Operational}$ means the total FCI charging capacity of the applicant's FSEs that were operational in the prior quarter; and

$Cap_{FCI}^{Approved}$ means the total FCI charging capacity of all of the applicant's approved FSEs, both operational and nonoperational.

(C) After receipt of an application designated by the applicant as ready for formal evaluation, the Executive Officer shall advise the applicant in writing either that:

1. The application is complete, or

2. The application is incomplete, in which case the Executive Officer will identify which requirements of section 95486.2(b)(2) have not been met.

   a. The applicant may submit additional information to correct deficiencies identified by the Executive Officer.

   b. If the applicant is unable to achieve a complete application within 180 days of the Executive Officer's receipt of the original application, the application will be denied on that basis, and the applicant will be informed in writing.

3. At any point during the application evaluation process, the Executive Officer may request in writing additional information or clarification from the applicant.

(D) The Executive Officer shall not approve an application if the Executive Officer determines, based upon the information submitted in the application and any other available information, that the application does not meet requirements in subsections 95486.2(b)(1) and (b)(2). If the Executive Officer does not approve the application, the applicant will be notified in writing and the basis for the disapproval shall be identified.

(E) If the Executive Officer determines the application has met all requirements for approval pursuant to subsections 95486.2(b)(1) and (b)(2), the Executive Officer will approve the application and provide an approval summary on the LCFS website including the site location and FSE ID, number and type of FSE, nameplate and effective simultaneous power rating for each FSE, and effective date range for FCI pathway crediting.

(F) *Crediting Period.* FCI crediting is limited to 5 years starting with the quarter following Executive Officer approval of the application.

(4) *Requirements to Generate FCI Credits.* To generate credits using FCI pathways the following conditions must be met. The applicant must maintain, and submit to CARB upon request, records demonstrating adherence to these conditions.

(A) The applicant must update the nameplate and effective simultaneous power rating of FSE if different from the power rating provided in the application. Any FSE design or operational

information that deviates from the original application must be declared to the Executive Officer, and a new attestation must be submitted using the language in section 95486.2(b)(2).

(B) The FSE must be open to the public, meaning that no obstructions or obstacles exist to preclude vehicle operators from entering the FSE premises, no access cards or personal identification (PIN) codes are required for the FSE to dispense fuel, and no formal or registered equipment training shall be required for individuals to use the FSE.

(C) The FSE that charges a fee for service must be capable of supporting a public point-of-sale method that accepts all major credit or debit cards.

(D) The FSE passed final inspection by the appropriate authority having jurisdiction and has a permit to operate.

(E) The FSE owner has fully commissioned the FSE, and has declared it fit to service retail EV drivers.

(F) The FSE registration must be completed pursuant to section 95483.2(b)(8) and the quantity of dispensed electricity must be reported as required in section 95491.

(G) The FSE must be operational within 12 months of application approval. If the applicant fails to demonstrate the operability within 12 months of approval then the application will be canceled. The applicant can reapply for the same FSE site eligible only for 2 years of crediting.

(H) The estimated cumulative value of FCI credits generated for the FSE in the prior quarter must be less than the difference between the total capital expenditure reported pursuant to section 95486.2(b)(6)(B)1 and the total grant revenue or other funding reported pursuant to section 95486.2(b)(6)(B)5 in the prior quarter.

1. The estimated value of FCI credits, for the purpose of this determination, shall be calculated using the number of FCI credits generated for the FSE in the quarter and the average LCFS credit price for that quarter published on the LCFS website.

2. The cumulative credit value generated for each FSE will be tracked as the sum of all quarterly credit values in constant-

dollar for the year in which the FCI application was approved using an annual discount rate of 10%.

3. The estimated value calculated under this provision will be made available only to the respective reporting entity in LRT-CBTS and will not be published on the LCFS website.

4. This will not affect the reporting entity's ability to generate non-FCI LCFS credits for the electricity dispensed at the FSE.

(5) *Calculation of FCI Credits.* FCI credits will be calculated using the following equation for each FSE approved under this provision:

$$Credits_{FCI}\ (MT) = (CI^{XD}_{standard} \times EER - CI_{FCI}) \times C_{Elec} \times \left(Cap^{i}_{FCI} \times N \times UT - Elec_{disp}\right) \times C$$

where:

$CI^{XD}_{standard}$ is the average carbon intensity requirement of gasoline (*XD* = "gasoline") for a given year as provided in section 95484(b);

EER is the dimensionless Energy Economy Ratio for Electricity/BEV or PHEV relative to gasoline as listed in Table 5;

CI_{FCI} is the California average grid electricity carbon intensity as listed in Table 7-1;

$C_{Elec}$is the conversion factor for electricity as listed in Table 4;

Cap^{i}_{FCI} is the FCI charging capacity (kWh/day) for the FSE;

N is the number of days during the quarter;

UT is the uptime multiplier which is the fraction of time that the FSE is available for charging during the quarter;

$Elec_{disp}$ is the quantity of electricity dispensed during the quarter (kWh);

C is a factor used to convert credits to units of metric tons from gCO_2e and has the value of:

$$C = 1.0x10^{-6}\frac{(MT)}{(gCO_2e)}$$

(6) *Reporting and Recordkeeping Requirements.* The following must be reported to the Executive Officer each quarter as set forth in section 95491 before credits will be issued to the LRT account associated with an approved FCI pathway.

(A) FSE availability. This is the percentage of hours the FSE is available for charging during the quarter relative to the permitted hours of operation for the site.

(B) Cost and revenue data. Provide a quarterly account of the following costs borne and revenues received by the FSE owner up through the most recent reporting quarter per site.

1. Total capital expenditures ($)
2. Total delivered cost ($) of electricity, including demand charges, and average delivered cost ($/kWh) for electricity
3. Total maintenance costs ($)
4. Total land rental cost ($)
5. Total grant revenue or other external funding received towards capital expenditures ($)
6. Total grant revenue or other external funding received towards operational and maintenance expenditures ($)
7. Total revenue ($) received from sale of electricity and average retail price ($/kWh) for electricity sold
8. Other operational expenditures ($)

(7) *Applications for Expanded FCI Capacity.* Applicants who increase the power rating of an FSE or add an FSE to a site that is already generating FCI credits under the LCFS must submit an application to the Executive Officer to generate additional credits based on the increased power or number of FSEs. Applications must be received before December 31, 2025 and do not extend the end date for the FCI crediting specified upon initial project approval in 95486.2(b)(3). The application must include the following elements.

(A) Updated number and type of FSE at the site.

(B) Updated FCI charging capacity, nameplate power rating and effective simultaneous power rating for each FSE at the site.

(C) The applicant must maintain records demonstrating that any new equipment added as a result of the expansion in capacity meet the requirements listed in 95486.2(b).

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95487. Credit Transactions.

(a) *General.* LCFS credits shall not constitute instruments, securities, or any other form of property.

(1) A regulated entity may:

(A) Retain LCFS credits without expiration for use within the LCFS market; and

(B) Acquire or transfer LCFS credits. A third-party, which is not a regulated entity or acting on behalf of a regulated entity, may not hold, purchase, sell, or trade LCFS credits, except as otherwise specified in section 95483.

(2) A regulated entity may not:

(A) Use credits in the LCFS program that are generated outside the LCFS program, including credits generated in other tradeable emission credit programs administered by the California Air Resources Board.

(B) Borrow or use credits from anticipated future carbon intensity reductions to demonstrate compliance pursuant to section 95485(a). This does not preclude contracting for future delivery of LCFS credits as described in section 95487(b)(1)(B).

(C) Generate LCFS credits from fuels exempted from the LCFS under section 95482(d) or are otherwise not eligible pursuant to section 95482.

(b) *Credit Transfers between Parties.*

(1) A regulated entity that wishes to sell or transfer credits ("the Seller") and a regulated entity that wishes to purchase or acquire a credit ("the Buyer") may enter into an agreement to transfer credits. Any such agreement must be fully documented in the LRT-CBTS pursuant to section 95487(b)(1)(B) through (F).

(A) *General Requirements for Credit Transfers.* The Seller may transfer credits provided the number of credits to be transferred by the Seller does not exceed the number of total credits in the Seller's credit account defined as follows:

$$Total\ Credits = Credits^{Gen} + Credits^{Aquired} - Sum\ of(Credits^{Retired} + Credits^{OnHold} + Credits^{Sold} + Credits^{Exported} + Credits^{CCMPledge})$$

where:

$Credits^{Gen}$, $Credits^{Aquired}$, $Credits^{Retired}$, $Credits^{OnHold}$, $Credits^{Sold}$, $Credits^{Exported}$, and $Credits^{CCMPledge}$ have the same meaning as those in section 95485(b).

(B) The credit transfer request must identify the type of transaction agreement for which the transfer request is being submitted, selecting one of the following types:

1. *Type 1 Transfer*: Over-the-counter agreement for the sale or transfer of LCFS credits for which delivery will take place no more than 10 days from the date the parties enter into the transaction agreement.

2. *Type 2 Transfer*: Over-the-counter agreement for the sale or transfer of LCFS credits for which delivery is to take place more than 10 days from the date the parties enter into the transaction agreement or that involve multiple transfers of LCFS credits over time.

3. *Type 3 Transfer*: Agreements for the sale of LCFS credits through any contract arranged through a clearing service provider.

(C) *For Type 1 Transfer*. Within 10 days from the date the parties enter into the credit transaction agreement, the Seller and the Buyer must initiate and complete the transfer request using the Credit Transfer Form (CTF) provided in the LRT-CBTS. The parties must provide:

1. *Date of Transaction Agreement.* The date on which the Buyer and Seller enter into the credit transaction agreement;

2. Names and the Federal Employer Identification Numbers (FEIN) of the Seller and the Buyer as registered in the LRT-CBTS;

3. First name, last name, and contact information of the Seller and Buyer representative;

4. The number of credits proposed to be transferred; and

5. The price or equivalent value of the consideration (in U.S. dollars) per credit proposed for transfer, excluding any fees.

(D) *For Type 2 Transfer*. Within 10 days from the date the parties enter into the credit transaction agreement, the Seller and the Buyer must report the following using the Credit Transfer Form (CTF) provided in the LRT-CBTS:

1. *Date of Transaction Agreement.* The date on which the Buyer and Seller enter into the credit transaction agreement;

2. Names and the Federal Employer Identification Numbers (FEIN) of the Seller and the Buyer as registered in the LRT-CBTS;

3. First name, last name, and contact information of the Seller and Buyer representative;

4. If the agreement requires a single delivery of credits or multiple deliveries of credits. The Executive Officer may assign reference numbers for reporting future credit transfers under agreements for multiple deliveries of credits;

5. The expected date of last credit delivery or the length of the agreement including the date by which all deliveries are to be completed;

6. The total number of credits anticipated to be transferred under the agreement;

7. The price per credit (in U.S. dollars) or the terms to determine the price for future credit transfer as per the agreement;

8. If the agreement is terminated or amended prior to its full execution as provided in subsection 5. above, the parties must notify the Executive Officer within 10 days; and

9. If the credit transfer is one of multiple deliveries under an agreement previously reported using a CTF, the parties must

provide the reference number (if any) assigned by the Executive Officer.

(E) *For Type 3 Transfer*. A credit transfer request submitted for an agreement executed through a clearing service provider must provide the following information:

1. Identify the exchange through which the transaction is conducted;

2. Date of close of trading for the contract;

3. Identify the contract description code assigned by the exchange to the contract;

4. Price at close of trading for the contract;

5. The number of credits in the contract to be transferred; and

6. Date of delivery of LCFS credits covered by the contract.

(F) If the transaction agreement does not specify the price for LCFS credits, the Seller must provide a brief description of the pricing method for the full transaction inclusive of all products and value exchanged. The seller must also select one of the following options:

1. The proposed transfer is to reflect an adjustment in CI value of fuel transacted between Seller and Buyer;

2. The proposed transfer incorporates a credit trade along with the sale or purchase of other product, and does not specify a price or cost basis for the sale of the credits alone.

(G) *Recording a Credit Transfer.* Upon receiving a fully-completed CTF, the Executive Officer shall, either:

1. Process and approve the transfer request and update the account balances of the Seller and Buyer to reflect the credit transfer, provided the Executive Officer determines all required information was submitted, and it accurately reflects the parties' positions at the time of the proposed transfer; or

2. Notify the parties that the proposed credit transfer is infeasible and identify the reasons for rejecting the transfer.

(2) *Facilitation of Credit Transfer.* A Seller or Buyer may elect to use a third-party broker as defined in section 95481 to facilitate the transfer of credits. A broker cannot acquire credits. A broker who will document transfers in LRT-CBTS must register in the LRT-CBTS, and the Buyer, Seller, or both must document, using the LRT-CBTS, authorization for broker to act on their behalf. A broker may, with the consent of the parties, conduct a "blind transaction" where the Buyer of the credit does not know the identity of the Seller, and/or the Seller of the credit does not know the identity of the Buyer.

(3) *Correcting Credit Transfer Errors.* A regulated entity is responsible for the accuracy of information submitted to the Executive Officer. If a regulated entity discovers an error in the information reported to the Executive Officer or recorded by the Executive Officer, the regulated entity must inform the Executive Officer in writing within five (5) days of the discovery and request a correction. Each submitted request is subject to Executive Officer review and approval. If the Executive Officer determines that the error occurred during the recording of the credit by Board staff, the Executive Officer will make the correction and no additional re-submissions are required.

(c) *Public Disclosure of Credit and Deficit Balances and Credit Transfer Information.*

(1) The Executive Officer shall, no less frequently than quarterly, provide to the public reports containing a summary of credit generation and transfer information including, but not limited to:

(A) Total deficits and credits generated or incurred in the most recent quarter for which data are available, including information on the types and quantities of fuels used to generate credits.

(B) Total deficits and credits generated or incurred in all previous quarters of the most recent year for which data are available, including information on the types and quantities of fuels used to generate credits.

(C) Total credits in regulated entities' accounts and the total number of outstanding deficits carried over by regulated entities from a previous compliance year.

(D) Information on the credits transferred during the most recent quarter for which data is available including the total number of credits transferred, the number of transfers, the number of parties making transfers, and the monthly average credit price for transfers that reported a price.

(2) The Executive Officer shall provide reports, no less frequently than monthly, to regulated entities and the public containing information necessary or helpful to the functioning of a credit market. Such reports may include recent information on credit transfer volumes, credit prices and price trends, and other information determined by the Executive Officer to be of value to market participants and the public. The Executive Officer shall establish, and may periodically modify, a schedule for the routine release of these reports.

(d) *Prohibited Transactions.* A trade involving, related to, or associated with any of the following is prohibited:

(1) Any manipulative or deceptive device;

(2) A corner or an attempt to corner the market for credits;

(3) Fraud, or an attempt to defraud any other entity;

(4) A false, misleading or inaccurate report concerning information or conditions that affects or tends to affect the price of a credit;

(5) An application, report, statement, or document required to be filed pursuant to this subarticle which is false or misleading with respect to a material fact, or which omits to state a material fact necessary to make the contents therein not misleading. A fact is material if it is reasonably likely to influence a decision by a counterparty, the Executive Officer, the Board, or the Board's staff; or

(6) Any trick, scheme, or artifice to falsify or conceal a material fact, including use of any false statements or representations, written or oral, or documents made by or provided to an entity through which transactions in credits are settled, or are cleared.

(7) Upon investigation pursuant to section 95495, the Executive Officer may cancel or reverse a credit transfer if a credit transfer is determined to be a prohibited transaction as per subsection (1) through (6) above. The Executive Officer shall notify the parties and identify the reasons for cancelling or reversing a credit transfer.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

§ 95488. Entities Eligible to Apply for Fuel Pathways.

(a) Any person may apply to the Executive Officer for fuel pathway carbon intensity certification for the purpose of credit or deficit generation.

(b) *Joint Applicants.* Multiple entities may contribute site-specific data to a single pathway application. In these cases, the parties involved may either designate a single entity as the pathway applicant, or designate multiple entities as joint applicants on a single pathway. Applying as joint applicants allows each entity to maintain control of confidential data for the portions of the pathway they submit.

(1) Each joint applicant is subject to all requirements for pathway application, attestations, validation and verification, recordkeeping, pursuant to this subarticle, for the portion of the pathway they control.

(2) A single entity designated to submit data on behalf of multiple entities within a pathway does not relieve any other entity in the pathway from responsibility for ensuring that the data submitted on its behalf is accurate.

(c) *Transition to CA-GREET3.0.*

(1) *Existing certified pathways.* In the first quarter of 2021, the Executive Officer will deactivate all fuel pathway codes in the LRT-CBTS for fuel pathways that were certified pursuant to a prior version of this subarticle, which used the CA-GREET2.0 model to determine CI, for the purpose of reporting fuel transactions that occurred after December 31, 2020. Fuel pathway holders seeking to generate credits from these pathways after that date must follow the pathway application and certification process outlined in this subarticle to receive a certified pathway.

(A) *Existing Lookup Table Pathways.* Fuel reporting entities using Lookup Table pathways that do not require an application pursuant to section 95488.1(b)(1) will be automatically updated in the LRT-CBTS to the values in Table 7-1 on the effective date of this subarticle.

(2) *New Pathway Applications*. Beginning in 2019 or the effective date of this subarticle, new fuel pathway applications using CA-GREET2.0 will not be processed. The requirement to obtain a third-party validation statement is effective for all pathway applications pending or submitted on or after January 1, 2020. All new pathway applications certified in 2019 will be validated by the Executive Officer.

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95488.1. Fuel Pathway Classifications.

(a) For purposes of fuel pathway carbon intensity determination, all new LCFS fuel pathways certified after January 1, 2019 (or the effective date of this regulation) shall be classified as either a:

(1) Lookup Table pathway;
(2) Tier 1 pathway; or
(3) Tier 2 pathway, as described below.

(b) *Lookup Table Classification.* Pathways falling under this classification are the simplest pathways to use. The Board's staff develops Lookup Table pathway CI values using the CA-GREET3.0 model. Input variables and assumptions are provided in the CA-GREET3.0 Lookup Table Pathways – Technical Support Documentation (August 13, 2018), which is incorporated herein by reference.

(1) *Lookup Table Pathways That Do Not Require a Fuel Pathway Application.* The following pathways are developed using average values for inputs into the CA-GREET3.0 model, which are not expected to vary significantly across providers of the fuel. Entities seeking to generate credits under the pathways listed in 95488.1(b)(1)(A) through (E) may report fuel transactions directly in the LRT-CBTS without taking any action in the AFP.

(A) California Reformulated Gasoline Blendstock for Oxygenate Blending (CARBOB)
(B) California Ultra-low Sulfur Diesel (ULSD)
(C) Compressed Natural Gas
(D) Propane
(E) Electricity (California average grid)

(2) *Lookup Table Pathways That Require a Fuel Pathway Application*. Fuel pathway applicants for the following Lookup Table pathways must register in the AFP and meet the application requirements of section 95488.5(b). Fuel pathway applicants may then report fuel transactions in the LRT-CBTS for the fuel pathways listed in 95488.1(b)(2)(A) through (F).

(A) Electricity (100 percent zero-CI sources, which include: eligible renewable energy resources as defined in California Public Utilities

Code sections 399.11-399.36, excluding biomass, biomethane, geothermal, and municipal solid waste)

(B) Electricity associated with smart charging pathway for EV charging and smart electrolysis pathway for hydrogen production through electrolysis

(C) Hydrogen (gaseous and liquefied) from central SMR of North American fossil-based natural gas

(D) Hydrogen (gaseous and liquefied) from central SMR of biomethane

(E) Hydrogen (gaseous) from electrolysis using California grid-average electricity

(F) Hydrogen (gaseous) from electrolysis using electricity from a zero-CI source as defined in (A) above

(c) *Tier 1 Classification*. The Tier 1 pathway classification applies to fuel pathway categories that the Board's staff has extensive experience evaluating. This classification includes fuel pathways for which the Executive Officer has identified a discrete set of site-specific inputs that can be modified to achieve CI changes. CI values for Tier 1 fuel pathways are determined using Board-approved Simplified CI Calculators. The Simplified CI Calculators provide a framework for applicants to enter monthly operational data inputs that are combined with emission factors and life cycle inventory data from the CA-GREET3.0 model to calculate the pathway CI. The Tier 1 classification includes, but is not limited to, the following fuel pathways:

(1) Ethanol derived from starch or fiber in corn kernels or grain sorghum, and sugarcane;

(2) Biodiesel produced from feedstocks including but not limited to oilseed crop-derived oils; rendered animal fat, distiller's corn oil, distiller's sorghum oil, and used cooking oil;

(3) Renewable Diesel produced by hydrotreatment of feedstocks in a stand-alone reactor, including but not limited to oilseed crop-derived oils, rendered tallow, distiller's corn oil, distiller's sorghum oil, and used cooking oil;

(4) LNG and L-CNG from North American fossil natural gas; and

(5) Biomethane from North American landfills, anaerobic digestion of wastewater sludge, dairy and swine manure, and food, urban landscaping waste, and other organic waste.

(d) *Tier 2 Classification.* The Tier 2 pathway classification shall apply to fuel pathways that the Board's staff has limited experience evaluating and certifying, including fuel pathways that are not currently in widespread commercial production. The Tier 2 classification includes all fuel pathways not included in

Tier 1 or the Lookup Table pathways. The Tier 2 classification includes, but is not limited to the following fuel pathways:

(1) Cellulosic alcohols;

(2) Biomethane from sources other than those listed under the Tier 1 classification in (c)(5), above;

(3) Hydrogen pathways not found in the Lookup Table;

(4) Electricity pathways not found in the Lookup Table;

(5) Drop-in fuels (renewable hydrocarbons) except for renewable diesel produced from feedstocks described in section 95488.1(c)(3). This category includes fuels produced from low carbon feedstocks co-processed with fossil feedstocks in petroleum refineries;

(6) Any fuel produced from unconventional feedstocks, such as algae oil;

(7) Pathways classified as Tier 1 that are produced using innovative production methods. Innovative production methods include, but are not limited to:

(A) Use of one or more low-CI process energy sources.

(B) Use of carbon capture and sequestration. (Projects that utilize carbon capture and sequestration are subject to the provisions of section 95490).

(C) Pathways classified as Tier 1 that cannot be accurately modeled using the Simplified CI Calculators. Such pathways must meet the substantiality requirements of 95488.9(a).

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95488.2. Relationship Between Pathway Registration and Facility Registration.

After establishing an account in the Alternative Fuels Portal, per the requirements of section 95483.2(a), fuel pathway applicants must begin the application process by completing the facility and pathway registration through the AFP web portal. The

provisions of 95488.2 do not apply to entities seeking to report fuel transactions for the fuel pathways listed in 95488.1(b)(1).

(a) *Production and Intermediate Facility Registration.* All production facilities and intermediate facilities from which site-specific operational data is relied upon in determining the CI score for a pathway must be registered in the AFP. All of the following fields that apply are required:

(1) Production company name and full mailing address.

(2) U.S. EPA Company ID for fuels covered by the federal RFS program. For fuels not covered by the RFS program, the AFP system will generate a Company ID.

(3) Company contact person's contact information.

(A) Name
(B) Title or position
(C) Phone number
(D) Mobile phone number
(E) Email address
(F) Company web site URL

(4) The fuel production facility name and address, for each proposed pathway.

(A) For biomethane to vehicle fuel pathways, the fuel production facility is the upgrading facility that purifies or otherwise produces biomethane that meets the applicable standards for pipeline or vehicle-quality natural gas.

(5) The names and addresses of any intermediate facilities, for each proposed pathway.

(A) For biomethane to vehicle fuel pathways, intermediate facilities that must be registered include the liquefaction facility, and the location where biogas or other biomethane feedstock is produced, if that location is not also the upgrading facility that is registered as the fuel production facility.

(B) For any feedstock whose supplier applies using site-specific CI data, the feedstock-processing facility must be registered as an intermediate facility for the fuel pathway in which the feedstock is utilized.

(6) U.S. EPA Facility ID for fuels covered by the federal RFS program. For fuels not covered by the RFS program, the Executive Officer will assign a Facility ID.

(7) Facility geographical coordinates (for each facility covered by the proposed pathways). Coordinates can be reported using either the latitude and longitude or the Universal Transverse Mercator coordinate systems.

(8) Facility contact person's contact information.

(A) Name
(B) Title or position
(C) Phone number
(D) Mobile phone number
(E) Email address

(9) Facility nameplate production capacity, or maximum expected throughput, in million gasoline gallon equivalents per year or other appropriate units. This information is required for each facility contributing site-specific data to the proposed pathways, including intermediate facilities in the supply chain.

(b) *Pathway Registration.* All of the following fields that apply are required.

(1) Consultant's contact information

(A) Name
(B) Title or position
(C) Legal company name
(D) Phone number
(E) Mobile phone number
(F) Email address
(G) Web site URL

(2) Fuel type (renewable diesel, ethanol, etc.)

(3) Feedstock

(4) Brief pathway description (one to two sentences describing the technology, transport mode, and any non-standard co-products)

(5) Proposed pathway carbon intensity value

(6) Estimated annual fuel production quantity under the proposed pathway (estimated minimum, maximum, and average), in the applicable units specified for reporting in 95491(d)(1) through (5).

(7) *Classification*. The fuel pathway applicant must declare whether the proposed fuel pathway falls under the Lookup Table, Tier 1 or Tier 2 provisions of this regulation as specified in section 95488.1. The Executive Officer will evaluate the fuel pathway applicant's classification declaration and either approve or change it.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95488.3. Calculation of Fuel Pathway Carbon Intensities.

(a) *Calculating Carbon Intensities.* Fuel pathway applicants and the Executive Officer will evaluate all pathways based on life cycle greenhouse gas emissions per unit of fuel energy, or carbon intensity, expressed in gCO_2e/MJ. For this analysis, the fuel pathway applicant must use CA-GREET3.0 model (including the Simplified CI Calculators derived from that model) or another model determined by the Executive Officer to be equivalent or superior to CA-GREET3.0.

(b) *CA-GREET3.0.* The CA-GREET3.0 model (August 13, 2018) contains emission factors for calculating greenhouse gas emissions from site-specific inputs to fuel pathways and standard values for parts of the life cycle not included in applicant-specific data submission. The model is open source and publicly available at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm and is incorporated herein by reference. CA-GREET3.0 includes contributions from the Oil Production Greenhouse Gas Estimator (OPGEE2.0) model (for emissions from crude extraction) and Global Trade Analysis Project (GTAP-BIO) together with the Agro-Ecological Zone Emissions Factor (AEZ-EF) model for land use change (LUC).

Tier 1 Simplified CI Calculators, which incorporate emission factors and life cycle inventory data from the CA-GREET3.0 model, are used to calculate carbon intensities for Tier 1 pathways. The eight Simplified CI Calculators listed below are publicly available at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm and are incorporated herein by reference:

(1) Tier 1 Simplified CI Calculator for Starch and Fiber* Ethanol (August 13, 2018)

(2) Tier 1 Simplified CI Calculator for Sugarcane-derived Ethanol (August 13, 2018)
(3) Tier 1 Simplified CI Calculator for Biodiesel and Renewable Diesel (August 13, 2018)
(4) Tier 1 Simplified CI Calculator for LNG and L-CNG from North American Natural Gas (August 13, 2018)
(5) Tier 1 Simplified CI Calculator for Biomethane from North American Landfills (August 13, 2018)
(6) Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Wastewater Sludge (August 13, 2018)
(7) Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure (August 13, 2018)
(8) Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Organic Waste (August 13, 2018)

* Fiber in this case refers to corn and grain sorghum fiber exclusively.

(c) *OPGEE2.0.* The OPGEE2.0 model is used to generate carbon intensities for crude oil used in the production of ultra-low sulfur diesel (ULSD) and California Reformulated Gasoline Blendstock for Oxygenate Blending (CARBOB).

(d) *Accounting for Land Use Change.* The Executive Officer calculates LUC effects for certain crop-based biofuels using the GTAP model (modified to include agricultural data and termed GTAP-BIO) and the AEZ-EF model. LUC values for six feedstock/finished biofuel combinations are provided in Table 6 below. The Executive Officer may use the same modeling framework to assess LUC values for other fuel or feedstock combinations, not currently found in Table 6, as part of processing a pathway application. Alternatively, the Executive Officer may require a fuel pathway applicant to use one of the values in Table 6, if the Executive Officer deems that value appropriate to use for a fuel or feedstock combination not currently listed in Table 6.

Table 6. Land Use Change Values for Use in CI Determination

Biofuel	LUC (gCO_2/MJ)
Corn Ethanol	19.8
Sugarcane Ethanol	11.8
Soy Biomass-Based Diesel	29.1
Canola Biomass-Based Diesel	14.5
Grain Sorghum Ethanol	19.4
Palm Biomass-Based Diesel	71.4

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95488.4. Relationship of Pathway Carbon Intensities to Units of Fuel Sold in California.

(a) LCFS CIs represent the life cycle greenhouse gas emissions, expressed in a per-megajoule of finished-fuel energy basis, associated with long-term, steady-state fuel production operations. Actual CIs vary over time due to a variety of factors, including but not limited to seasonality, feedstock properties, plant maintenance, and unplanned interruptions and shutdowns. A fuel production operation will not be found to be in violation of its certified pathway based on CI unless a CI calculated from production data covering 24 months of operations is higher than the certified CI reported for that fuel in the LRT-CBTS system. A fuel pathway applicant may add a conservative margin of safety, of a magnitude determined by the applicant, to increase the certified CI above the operational CI calculated based on the data submitted in the initial fuel pathway application, to account for potential process variability and diminish the risk of non-compliance with the certified CI. Fuel producers labeling fuel sold in California with LCFS CIs (in product transfer or similar documents), and fuel reporting entities using those CIs to report the fuel in the LRT-CBTS system, must ensure that the fuel so labeled and so reported will be found to have a life cycle CI, as calculated from production data covering 24 months of operation, that is equal to or less than the CIs reported in the LRT-CBTS system and on product transfer documents. Fuel reporting entities shall not report fuel sales under any LCFS CI unless the actual CI of that fuel, calculated as described in this subarticle, is equal to or less than the LCFS CI under which sales of that fuel are reported in the LRT-CBTS system.

(b) *General Rule.* Except as provided in subdivision (c) below, fuel producers and fuel reporting entities covered by this regulation order must associate a CI with each unit of fuel sold in California. In general, fuel producers and fuel reporting entities shall assign all units of fuel produced while a given set of production parameters is in effect the same CI, regardless whether those units will be sold in California. For example, where a producer uses both biogas and natural gas as process fuel, the producer shall assign all units produced a single CI that reflects the mix of process fuels used to produce those units; the producer shall not assign the units destined for the California market a CI associated only with the use of biogas.

A producer or fuel reporting entity may assign a different certified CI only when one or more production parameters changes. Following that change, all units

produced while the new set of production parameters is in effect have the new CI, regardless of whether those units will be sold in California.

(c) *Exceptions.* Under the following two sets of conditions, a producer or fuel reporting entity may assign different CIs to portions of the fuel produced while a given set of production parameters is in effect. Those conditions are:

(1) Two or more feedstocks are being simultaneously fed into the production process. For example, a renewable diesel production facility may feed a mixture of soy oil, tallow, and used cooking oil into its production process. Or a hydrogen production facility may use both natural gas and renewable natural gas as feedstock for steam methane reformation.

(2) Two or more co-products are being produced simultaneously. For example, a corn ethanol plant may dry only a portion of the distiller's grains it produces; a portion of the distiller's grains produced is sold dry, and the remainder is sold wet.

(d) *How to Use the Multiple Feedstock Exception.* When two or more feedstocks are being simultaneously fed into the production process, the producer or fuel reporting entity shall associate a portion of the fuel produced with each feedstock, using the production facility's average production yield and one of the methods provided in section 95491(d)(1)(C). The producer or fuel reporting entity must then label each feedstock-specific subdivision of the total fuel quantity produced with the certified CI associated with that feedstock.

(e) *How to use the Multiple Co-Product Exception.* When two or more co-products are being simultaneously produced, the producer or fuel reporting entity may label the fuel associated with those co-products one of two ways:

(1) If the production facility has available to it a single CI reflective of the current set of operational conditions (including the production of two or more co-products, in the proportions currently being produced), the producer or fuel reporting entity may label the facility's entire production run with that CI.

(2) If the production facility has available to it separate CIs associated with the production of each co-product, the producer or fuel reporting entity may label portions of the fuel produced with the certified CIs associated with each co-product, in proportion to the co-product stream fraction that each co-product comprises. The producer or fuel reporting entity shall calculate the co-product proportions on an appropriate basis to conform to the life cycle approach used for the fuel pathway.

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95488.5. Lookup Table Fuel Pathway Application Requirements and Certification Process.

(a) *Applicability*. A fuel reporting entity may use a Lookup Table pathway if the Lookup Table (Table 7-1 in section 95488.5(e)) contains a fuel pathway that closely corresponds to the actual physical fuel production pathways used to produce the fuel in question. A fuel's actual physical fuel production pathway corresponds closely with a Lookup Table pathway when it is consistent with the Lookup Table pathway in all the areas listed in (1) through (6) below:

(1) Feedstocks used to produce the fuel;

(2) Fuel and feedstock production technology;

(3) Regions in which feedstocks and finished fuel are produced;

(4) The modes used to transport feedstocks and finished fuel and the transport distances involved;

(5) The types and amounts of thermal and electrical energy consumed in both feedstock and finished fuel production. This applies both to the energy consumed in the production process and to the upstream energy consumed (e.g., fuels used to generate electricity; energy consumed to produce natural gas, etc.); and

(6) The CI of the fuel pathway applicant's product must be lower than or equal to the Lookup Table pathway CI. If the Executive Officer determines the product has an actual CI that is likely to be higher than the Lookup Table CI value, the applicant may apply for a Tier 2 pathway.

(b) *Lookup Table Pathway Application Requirements*. Entities seeking approval to report fuel transactions using the fuel pathways listed in 95488.1(b)(2)(A) through (F) (electricity generated from one of the zero-CI sources listed in 95488.1(b)(2)(A), smart charging or smart electrolysis, and all hydrogen Lookup Table pathways) must submit the fuel pathway applicant attestation letter pursuant to the requirements of 95488.8(a) and meet the following requirements:

(1) The following information must be submitted with applications for the Lookup Table pathway for electricity generated from zero-CI sources and smart charging or smart electrolysis:

(A) For directly supplied zero-CI electricity, an applicant must indicate the locations of electricity generation equipment, meters, meter ID numbers, and identify any other users of the electricity.

(B) For zero-CI electricity supplied using book-and-claim accounting, contracts and invoices are required to demonstrate that the electricity meets the requirements of section 95488.8(i)(1).

(C) For smart charging or smart electrolysis electricity, records demonstrating the quantity of electricity dispensed during each hour for the latest quarter.

(2) The following information shall be submitted with applications for any hydrogen Lookup Table pathways:

(A) Submittal of the fuel pathway applicant attestation letter affirms that the applicant has reviewed and understood the pathway conditions described in the Lookup Table Pathways – Technical Support Documentation specified in section 95488.5(e), and attests that their actual physical pathway is consistent with the Lookup Table pathway in the areas listed in 95488.5(a). Any exceptions, whether likely to result in a higher or lower CI, must be noted in the attestation letter.

(B) The completed NREL National Fuel Cell Technology Evaluation Center's Hydrogen Station Infrastructure Data Template covering three months of operation, if available, is required.

(3) The following information must be submitted with all Lookup Table pathway applications for renewable hydrogen:

(A) Contracts and invoices meeting the requirements of 95488.8(h), or 95488.8(i), are required to substantiate type and source of renewable input used to produce the fuel.

(c) *Completeness Check for Lookup Table Fuel Pathway Applications.* For the Lookup Table pathways listed in 95488.1(b)(2)(A) through (F), the Executive Officer will evaluate submitted information for completeness. The Executive Officer shall contact the applicant regarding any lack of required information or clarification of submitted information. If the fuel pathway applicant does not provide a satisfactory response to address the request within 15 business days, the Executive Officer will reject the pathway application. Applicants whose applications are rejected may submit a new application that addresses deficiencies highlighted during the earlier review.

(d) *Updates to Electricity Pathways*.

(1) *Annual Update to California Average Grid Electricity Pathway.* In order to reflect the rapidly evolving portfolio of electricity generating resources in California, the Executive Officer will update the "California Average Grid Electricity Used as a Transportation Fuel in California" Lookup Table pathway CI value on an annual basis. The Executive Officer will use the methodology described in the supporting document specified in section 95488.5(e) to determine the carbon intensity. The CA-GREET3.0 model inputs and data sources used to calculate the CI will be posted for 45 days for public comment prior to certification. If these comments require significant revision of the originally published pathway, an updated pathway will be posted for public comment. The updated Lookup Table pathway CI value will be available for reporting in the quarter in which it is certified.

(2) *Update to Smart Charging Electricity Pathways*. In order to reflect the seasonal variation of electricity generating resources in California and to maintain accounting consistency with the CI of the California Average Grid Electricity pathway, the Executive Officer will use the methodology described in the supporting document specified in section 95488.5(e) and the public comment process described in 95488.5(d)(1) to update the smart charging or smart electrolysis pathway CIs in Table 7-2.

(e) The following supporting document, which is incorporated herein by reference, describes the methodology and data sources used to determine the carbon intensity values for the fuel pathways, shown below in Table 7-1, and the hourly windows for smart charging or smart electrolysis electricity pathways, shown below in Table 7-2:

Industrial Strategies Division, California Air Resources Board. August 13, 2018. CA-GREET3.0 Lookup Table Pathways Technical Support Documentation.

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

Table 7-1. Lookup Table for Gasoline and Diesel and Fuels that Substitute for Gasoline and Diesel[2]

Fuel	Fuel Pathway Code	Fuel Pathway Description	Carbon Intensity Values (gCO_2e/MJ)
CARBOB	CBOB	CARBOB - based on the average crude oil supplied to California refineries and average California refinery efficiencies	100.82
Diesel	ULSD	ULSD - based on the average crude oil supplied to California refineries and average California refinery efficiencies	100.45
Compressed Natural Gas	CNGF	Compressed Natural Gas from Pipeline Average North American Fossil Natural Gas	79.21
Propane	PRPF	Fossil LPG from crude oil refining and natural gas processing used as a transport fuel	83.19
Electricity	ELCG	California average grid electricity used as a transportation fuel in California	93.75 (and subject to annual updates)
	ELCR	Electricity that is generated from 100 percent zero-CI sources used as a transportation fuel in California	0.00
	ELCT	Electricity supplied under the smart charging or smart electrolysis provision	(See Table 7-2)
Hydrogen	HYF	Compressed H2 produced in California from central SMR of North American fossil-based NG	117.67
	HYFL	Liquefied H2 produced in California from central SMR of North American fossil-based NG	150.94
	HYB	Compressed H2 produced in California from central SMR of biomethane (renewable feedstock) from North American landfills	99.48
	HYBL	Liquefied H2 produced in California from central SMR of biomethane (renewable feedstock) from North American landfills	129.09
	HYEG	Compressed H2 produced in California from electrolysis using California average grid electricity	164.46
	HYER	Compressed H2 produced in California from electrolysis using zero-CI electricity	10.51

[2] For comparison on an equivalent basis (gCO_2e per MJ of conventional fuel displaced), the CIs listed in Tables 7-1 and 7-2 must be divided by the EER in Table 5 for the appropriate fuel-vehicle combination. The EER-adjustment is made when fuel quantities are reported in the LRT-CBTS to calculate the correct number of credits or deficits, using the equations in 95486.1(a).

(f) *Smart Charging or Smart Electrolysis Lookup Table Pathways.* The Executive Officer will calculate the following carbon intensity lookup table that may be used for reporting electric vehicle charging and hydrogen produced via electrolysis in California. For hydrogen production through electrolysis outside of California, an applicant must provide, through the Tier 2 application process, a comparable method to determine smart electrolysis carbon intensity values for the grid electricity in the state or region where hydrogen is produced.

Updates to this table will be provided at least annually on the LCFS web site.

Table 7-2. Calculated Smart Charging or Smart Electrolysis Carbon Intensity Values for 2019[3]

Hourly Window	CI (gCO2e/MJ)			
	Q1	Q2	Q3	Q4
12:01 AM – 1:00 AM	87.06	86.91	86.87	90.25
1:01 AM – 2:00 AM	87.06	85.91	86.80	88.55
2:01 AM – 3:00 AM	87.06	87.20	86.77	87.80
3:01 AM – 4:00 AM	87.06	87.03	86.72	87.91
4:01 AM – 5:00 AM	87.63	91.45	87.17	90.98
5:01 AM – 6:00 AM	94.46	105.76	95.77	105.08
6:01 AM – 7:00 AM	110.98	94.28	92.09	122.40
7:01 AM – 8:00 AM	105.79	2.48	88.39	109.22
8:01 AM – 9:00 AM	86.35	1.96	89.39	94.27
9:01 AM – 10:00 AM	58.66	2.92	91.09	90.26
10:01 AM – 11:00 AM	57.80	50.25	93.23	89.84
11:01 AM – 12:00 PM	56.52	53.31	97.87	91.17
12:01 PM – 1:00 PM	55.97	55.12	104.23	92.03
1:01 PM – 2:00 PM	56.50	58.67	110.13	93.36
2:01 PM – 3:00 PM	56.53	63.57	115.76	95.25
3:01 PM – 4:00 PM	57.80	26.45	123.91	104.30
4:01 PM – 5:00 PM	92.45	48.57	131.52	136.96
5:01 PM – 6:00 PM	125.85	120.79	146.52	156.40
6:01 PM – 7:00 PM	144.90	151.38	155.70	153.00
7:01 PM – 8:00 PM	127.62	150.96	140.27	141.37
8:01 PM – 9:00 PM	114.50	122.63	118.35	130.78
9:01 PM – 10:00 PM	95.55	93.62	100.45	115.22
10:01 PM – 11:00 PM	88.25	88.12	91.21	102.03
11:01 PM – 12:00 AM	87.07	87.12	88.57	93.34

[3] Based on 2019 marginal emission rates determined using the Avoided Cost Calculator (May 2018), which is incorporated herein by reference.

(g) *Executive Officer Review of CI Selection.* A fuel reporting entity's choice of

carbon intensity value from the Lookup Table is subject in all cases to Executive Officer review. The Executive Officer may request any documentation necessary to determine that the pathway conforms to the Lookup Table pathway.

(1) If the Executive Officer has reason to believe that a fuel reporting entity's Lookup Table choice is not the CI value that most closely corresponds to its actual pathway CI, the Executive Officer shall notify the entity through the LRT-CBTS to choose a different pathway from the Lookup Table; or

(2) If the Executive Officer has reason to believe that the Lookup Table does not contain a fuel pathway that closely corresponds with the actual fuel pathway, the Executive Officer will notify the entity accordingly and the fuel reporting entity will not be allowed to use the Lookup Table to generate credits or deficits. In that case, the entity may apply for a Tier 1 or Tier 2 pathway.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95488.6. Tier 1 Fuel Pathway Application Requirements and Certification Process.

(a) *Documentation Required for Tier 1 Pathways*. A fuel pathway applicant may apply for a Tier 1 pathway using the provisions set forth in this section. After satisfying all requirements for pathway and facility registration in 95488.2, the applicant must submit the following information to the Executive Officer for consideration of a Tier 1 pathway CI.

(1) *Simplified CI Calculator.* A fuel-specific Simplified CI Calculator populated with all applicable site-specific operational data inputs is required. The period covered shall be the most recent 24 month period of operation. Fields that require site-specific inputs are marked in the Simplified CI Calculator. Site-specific inputs include, but are not limited to, the monthly quantity of all feedstocks consumed in the fuel production facility, the electricity generation mix of the subregion(s) where feedstock and fuel production occur, the types and monthly quantities of all energy used in the production of the fuel, and the monthly quantities of fuel produced.

(A) The Simplified CI Calculators include appropriate LUC or other indirect carbon intensity modifiers from Table 6 when applicable.

(B) Applicants must follow the instructions for completing site-specific inputs in the Simplified CI Calculators found in the Tier 1 Simplified CI Calculator Instruction Manual (August 13, 2018), incorporated herein by reference.

Industrial Strategies Division, California Air Resources Board. August 13, 2018. Tier 1 Simplified CI Calculator Instruction Manual.

(C) All applicants using grid electricity must choose electrical generation energy mixes from among the subregions in CA-GREET3.0 and the Simplified CI Calculators, if applicable. The options include the 26 subregions defined in the U.S. EPA's Emissions and Generation Resource Integrated Database with year 2014 data (eGRID2014v2, released on February 27, 2017), and a national grid mix for Brazil and Canada.

1. *User-defined Process Energy Option.* Applicants whose fuel production facilities or feedstock source regions are located in an area for which there is no corresponding subregion included in the Simplified CI Calculator may select the user-defined option, and shall consult with the Executive Officer for approval of the data prior to submitting an application.

(2) *Supplemental Information.* Supporting evidence for specified inputs to the CI calculator can be uploaded to the AFP as a supplemental information document, as needed. Supplemental information is required under the following circumstances:

(A) If an alternative form of process energy supplied directly to the production facility are used, evidence must be provided to identify the source, to demonstrate that it is delivered directly to the production facility, and to determine the carbon intensity of the process energy input.

(B) If the fuel pathway applicant selects user-defined emission factors for regions not currently included in the Simplified CI Calculator, to reflect the grid electricity resource mix, crude and natural gas for that region. Supporting evidence and data sources for these emission factors must be provided.

(C) If the fuel produced or any by-products or co-products receive additional processing after they leave site, such as additional distiller's grains drying or fuel distillation, supporting evidence of the energy consumed for those processes must also be submitted.

(D) If the fuel production facility is co-located with one or more unrelated facilities, and energy consumption data (or other data required in calculating CI) are not separately available for the fuel production facility, the applicant shall install automated metering equipment with electronic data archival to enable an Executive Officer accredited verification body to confirm energy consumption data for the 24 months of operation submitted in the application. The metering should be capable of recording daily total energy consumption data. The same requirements apply if a single facility includes multiple operations including fuel production.

(E) Other information to facilitate staff review may also be included as part of the supplemental information.

(b) *Certification Process for Tier 1 Pathway Applications.*

(1) *Validation.* The applicant must seek the services of an Executive Officer accredited verification body to complete a pathway validation as specified in section 95500. A positive or qualified positive validation statement must be received by the Executive Officer from the verification body in order for CARB's completeness review, evaluation, and certification of the pathway application to proceed. In cases where a single applicant or a joint applicant does not complete validation, the application will be denied without prejudice. In cases where an applicant cannot complete validation within six months of submitting an application or receives an adverse validation statement, the application will be denied without prejudice.

(2) *Completeness Review.* Upon receipt of a positive or qualified positive validation statement, the Executive Officer will conduct a completeness review of the Tier selection to ensure the pathway meets the requirements for Tier 1, and evaluate if the inputs to the Simplified CI Calculator are complete.

(A) *Application Complete.* If the Executive Officer deems complete the applicant's Simplified CI Calculator and supplemental information, the fuel pathway applicant shall be notified as such.

(B) *Application Incomplete.* If the Executive Officer deems the Simplified CI Calculator and supplemental information incomplete, the Executive Officer will reject the pathway application without prejudice and inform the fuel pathway applicant of the rationale for rejection. Applicants whose applications are rejected may submit a new application that addresses deficiencies highlighted during the earlier review.

(3) *Certification.* The Executive Officer may certify or reject a pathway application.

(A) The Executive Officer will evaluate the application to determine whether it has met all requirements necessary for certification. At any point during the evaluation process, the Executive Officer may request in writing additional information or clarification from the applicant.

(B) If the Executive Officer determines the application has met all requirements necessary for certification, the Executive Officer will complete a pathway summary of the inputs, the facility average fuel production yield, CI results, and any applicable limitations or conditions. Upon certification of a Tier 1 application, the pathway will be available for reporting for the quarter in which it was deemed complete.

(C) Upon certification, the fuel pathway applicant(s) becomes the fuel pathway holder(s) for the certified fuel pathway and is subject to the requirements of 95488.10, and any limitations or conditions identified by the Executive pursuant to (3)(B) above, in order for that pathway to remain eligible for reporting and credit generation purposes.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95488.7. Tier 2 Fuel Pathway Application Requirements and Certification Process.

(a) *Documentation Required for Tier 2 Pathways*. A fuel pathway applicant may apply for a Tier 2 pathway using the provisions set forth in this section. After satisfying all requirements for pathway and facility registration in 95488.2, the applicant must submit the following information to the Executive Officer for consideration of a Tier 2 pathway CI:

(1) *CA-GREET Model.* A copy of the CA-GREET3.0 spreadsheet prepared for the life cycle analysis of the proposed fuel pathway. Tier 2 pathway carbon intensities must be calculated using the CA-GREET3.0 model, with the most current 24 months of operational data, unless the Executive Officer has approved the use of a method or model that the Executive Officer has determined is at least equivalent to the calculation

methodology used by CA-GREET3.0. The CA-GREET3.0 model shall include appropriate LUC or other indirect carbon intensity modifier from Table 6 when applicable.

(2) *Life Cycle Analysis Report*. A life cycle analysis report that describes the full fuel life cycle, and describes in detail the calculation of the fuel pathway CI. The report shall contain sufficient detail to allow the Board's staff to replicate the CI calculated by the applicant. All inputs to, and outputs from, the fuel production process that contribute to the life cycle CI must be described in the life cycle analysis report. These inputs and outputs must then be fully accounted for in the calculation of the fuel pathway CI. The life cycle analysis report shall include the following information:

(A) A detailed description of the full fuel production process. The description shall include:

1. A description of the full well-to-wheels fuel life cycle, including the locations where each primary step in the fuel life cycle occurs. This description shall identify where the system boundary was established for the purposes of performing the life cycle analysis on the proposed pathway. The discussion of the system boundary shall be accompanied by a schematic depicting the system boundary. That schematic shall show all feedstock and fuel production units that are included in the system boundary, as well as all material and energy flows across the system boundary. Any feedstock or fuel production units that have been excluded from the system must be shown on the schematic, and must be explicitly discussed in the narrative description of the full fuel life cycle.

2. A description of all fuel production feedstocks used, including all pre-processing to which feedstocks are subject. For fuels utilizing agricultural crops for feedstocks, the description shall include the agricultural practices used to produce those crops. This discussion shall cover energy and chemical use, typical crop yields, feedstock harvesting, transport modes and distances, storage, and pre-processing (such as drying or oil extraction).

3. A description of all material inputs to the production process not covered in 2, above. These include, but are not limited to enzymes, nutrients, chemicals, catalysts, and microorganisms.

4. A description of the transportation modes used throughout the fuel life cycle. This discussion must identify origins and destinations, cargo carrying capacities, fuel shares, and the distances traveled for each transport mode.

5. A description of all facilities and process units involved in the production of fuel under the proposed pathway.

6. A list of all combustion-powered equipment, along with their respective capacities, sizes, or rated power, and type and amount of fuel combusted, throughout all phases of the fuel life cycle over which the fuel pathway applicant exercises control.

7. A quantitative discussion of the thermal and electrical energy consumption that occurs throughout all phases of the fuel life cycle over which the applicant exercises control. All fuels used (natural gas, biogas, coal, biomass, etc.) must be identified and use rates quantified. The regional electrical energy generation fuel mix used in the CA-GREET3.0 analysis must be identified. Internally generated power such as cogeneration and combined heat and power must also be described. All fuel pathway applicants using grid electricity must choose electrical generation energy mixes from among the subregions in CA-GREET3.0, if applicable. The options include the 26 subregions defined in eGRID2014v2, and a national grid mix for Brazil and Canada. Applicants whose fuel production facilities or feedstock source regions are located in an area for which there is no corresponding subregion included in CA-GREET3.0 must enter user-defined energy resources and submit the source of the data utilized to the Executive Officer for approval.

8. A description of all co-products, byproducts, and waste products associated with production of the fuel. That description shall extend to all processing, such as drying of distiller's grains, applied to these materials after they leave the fuel production process, including processing that occurs after ownership of the materials passes to other parties. Moreover, if a co-product credit is claimed for a co- or by-product, that credit must reflect all post-fuel-production processing steps covered by this section. If a co-product (e.g., electricity) is exported across the fence line, details of the quantity of energy transferred on a daily basis must be monitored using data systems with electronic archival.

(B) A detailed description of the calculation of the pathway CI. This description must provide clear, detailed, and quantitative information on process inputs and outputs, energy consumption, greenhouse gas emissions generation, and the final pathway carbon intensity, as calculated using CA-GREET3.0. Important intermediate values in each of the primary life cycle stages shall be shown. Those stages include but are not limited to feedstock production and transport; fuel production, fuel transport, and dispensing; co-product production, transport and use; waste generation, treatment and disposal; and fuel use in a vehicle. This description shall include, at a minimum:

1. A table showing all CA-GREET3.0 input values entered by the applicant. The worksheet, row, and column locations of the cells into which these inputs were entered shall be identified. In combination with the modifications identified in subsection (B)2. below, this table shall enable the Executive Officer to enter the reported inputs into a copy of CA-GREET3.0 and to replicate the carbon intensity results reported in the application.

2. A detailed discussion of all modifications other than those covered by subsection (B)1. above, made to the CA-GREET3.0 spreadsheet. This discussion shall allow the Executive Officer to duplicate all such modifications and, in combination with the inputs identified in subsection (B)1. above, replicate the carbon intensity results reported in the application.

3. Documentation of all CA-GREET3.0 values used in the carbon intensity calculation process.

4. A detailed description of all supporting calculations that were performed outside of the CA-GREET3.0 spreadsheet.

(C) Descriptions of all co-located facilities, which in any way utilize outputs from, or provide inputs to, the fuel production facility. Such co-located facilities include but are not limited to cogeneration facilities, facilities that otherwise provide heat or electrical energy to the fuel production process, facilities that process or utilize co-products such as distillers grains with solubles, and facilities which provide or pre-process feedstocks or thermal energy fuels. If energy is supplied to the fuel production facility by a co-located cogeneration plant and that plant also supplies energy to other facilities, those other facilities must be identified and described. For facilities that are co-located with other production facilities or utilize

multiple processing operations in addition to fuel production, demonstration of energy use should conform to section 95488.6(a)(2)(D).

(D) A list of references covering all information sources used in the preparation of the life cycle analysis. All reference citations in the application shall include standard in-text parenthetical citations stating the author's last name and date of publication. Each in-text citation shall correspond to complete publication information provided in the list of references. Complete publication information shall at a minimum, identify the author(s), title of the referenced document (and of the article within that document, if applicable), publisher, publication date, and pages cited. For internet citations, the reference shall include the universal resource locator (URL) address of the citation, as well as the date the web site was last accessed.

(E) One or more process flow diagrams that, singly or collectively, depict the complete fuel production process. Each piece of equipment or stream appearing on the process flow diagram shall include data on its energy and materials balance, along with any other critical information such as operating temperature, pH, rated capacity, etc.

(F) A copy of the federal Renewable Fuel Standard (RFS) Third Party Engineering Review Report required pursuant to 40 CFR part 80.1450, if available. If the RFS engineering report is not available, the Life Cycle Analysis Report shall explain why it is not available.

(G) A copy of the federal Renewable Fuel Standard (RFS) Fuel Producer Co-products Report as required pursuant to 40 CFR 80.1451(b)(1)(ii)(M)-(N), if available.

(3) *Tier 2 Pathways for EER-Adjusted Carbon Intensity.* Applicants supplying fuel for a transportation application that is not included in Table 5 may apply for an EER-adjusted carbon intensity for reporting and credit generation purposes.

(A) *Documentation Requirements.* To request an EER-adjusted carbon intensity, the applicant must provide the following in addition to subsections (1) and (2) above:

1. A letter of intent to request an EER-adjusted CI and why the EER values provided in Table 5 do not apply.

2. Supplemental information including a detailed description of the methodology used, all assumptions made, and all data and references used for calculation of the proposed EER-adjusted CI value. The methodology used must compare the useful output from the alternative fuel technology to that of comparable conventional fuel technology.

3. If the applicant plans to use a Lookup Table pathway to request an EER-adjusted CI then subsections (1) and (2) above do not apply.

(b) *Scientific Defensibility*. For a proposed Tier 2 pathway to be certifiable by the Executive Officer, the fuel pathway applicant must demonstrate that the life cycle analysis prepared in support of the pathway application is scientifically defensible in the Executive Officer's best engineering and scientific judgment.

For purposes of this regulation, "scientifically defensible" means the method for calculating the fuel's carbon intensity may rely on, but is not limited to, publication of the proposed pathway in a major, well-established and peer-reviewed scientific journal (e.g., the International Journal of Life Cycle Assessment; The Journal of Cleaner Production, Biomass and Bioenergy).

(c) *Documents for Public Review.* Section 95488.8(c) contains requirements for submittal of documents that contain confidential business information and redacted versions for posting to a public LCFS web site.

(d) *Certification Process for Tier 2 Pathway Applications.*

(1) *Completeness Review.* The Executive Officer will evaluate the LCA Report, CA-GREET3.0 model, and all submitted documentation for completeness in order to conduct a comprehensive evaluation of the pathway application and confirm that the methods presented are appropriate from an LCA perspective and confirm that the fuel pathway application meets the requirements for the Tier 2 classification. The Executive Officer may contact the fuel pathway applicant for an explanation of any questionable inputs, methods or lack of information in the application. The applicant must respond and address the request within 15 business days, as provided in subsection (1)(B) below:

(A) *Application Complete.* If the Executive Officer deems the Tier 2 application and LCA report complete and appropriate, the applicant will be notified accordingly and provided with a list of site-specific inputs required for validation. The fuel pathway applicant must then seek the services of an Executive Officer accredited verification body for validation as specified in section 95500.

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

(B) *Application Incomplete.* If the Executive Officer deems the Tier 2 application incomplete, and the applicant does not provide a satisfactory response to address the deficiencies within 15 business days, the Executive Officer will reject the pathway application without prejudice and inform the applicant of the rationale for rejection. Fuel pathway applicants whose applications are rejected may submit a new application that addresses deficiencies highlighted during the earlier review.

(2) *Site-specific Inputs.* Tier 2 pathways are expected to be unique with no predetermined life cycle analysis profile; therefore, such pathways do not include a defined set of predetermined site-specific inputs that are required to be provided in the annual Fuel Pathway Report and must be verified. The Executive Officer shall identify all site-specific inputs for a Tier 2 pathway and make this available for review by the fuel pathway applicant. This includes any non-numerical parameters or conditions which must be checked by the verifier. The applicant has 15 business days to review and accept the Executive Officer's proposed site-specific inputs. If there is disagreement, the applicant may suggest modified site-specific inputs within this period. The Executive Officer will review the applicant's suggested inputs and present to the applicant a final list of site-specific inputs. The applicant then has 7 business days to accept the updated site-specific inputs. If the applicant disagrees with the final list of site-specific inputs, the applicant may withdraw the pathway application; if not withdrawn, the application will be rejected by the Executive Officer. The Executive Officer's decision regarding the final list of site-specific inputs for Tier 2 pathways is binding.

(3) *Validation.* A positive or qualified positive validation statement must be received by the Executive Officer from the verification body in order for CARB's evaluation and certification of the pathway application to proceed. In cases where a single applicant or a joint applicant does not complete validation, the application will be denied without prejudice. In cases where an applicant cannot complete validation within six months of submitting an application, or receives an adverse validation statement, the application will be denied without prejudice.

(4) *Engineering Review*. The Executive Officer has the authority to request any supporting documentation to investigate specific inputs in the fuel pathway applicant's submitted CA-GREET3.0 model. The Executive Officer will evaluate all applications against the following criteria:

(A) The Executive Officer will attempt to replicate the applicant's carbon intensity calculations. Replication will proceed as follows:

1. Starting with a copy of CA-GREET3.0 that has not previously been used for calculations associated with the proposed pathway, the Executive Officer will enter all the inputs reported by the applicant.
2. The Executive Officer will then apply all CA-GREET3.0 modifications reported by the applicant.
3. If the Executive Officer is able to duplicate the applicant's results, the Executive Officer will proceed to subsection (B) below. If the Executive Officer is not able to duplicate the applicant's CA-GREET3.0 results, the application shall be denied.

(B) The Executive Officer will evaluate the validity of all inputs and methods not directly related to energy consumption used to calculate the applicant's CI. If any of those inputs are found to be invalid, the application will be denied.

(C) The Executive Officer will complete a pathway summary containing the site-specific inputs, the facility average fuel production yield, CI results, and any applicable limitations or conditions. The pathway summary, with CBI redacted, will be posted to the LCFS web site for public review.

(5) *Public Comment Period.* The application package, containing the Executive Officer's pathway summary and the documents prepared by the applicant for public review, will be posted to the LCFS web site for public comment once the Executive Officer completes a final check of the pathway application to ensure it has met all requirements for certification.

(A) Comments will be accepted for 10 business days following the date on which the application was posted. Only comments related to potential factual or methodological errors will require responses from the fuel pathway applicant. The Executive Officer will forward to the applicant all comments identifying potential factual or methodological errors. In response, the applicant must either:

1. Make revisions to its application that respond to the comments received and submit those revisions to the Executive Officer. The revised application packet must include a detailed discussion of the revisions made. The discussion must clearly delineate how each comment is related to a responsive revision. The revisions submitted must be approved by the Executive Officer before the application can be certified;

2. Submit a detailed written response to the Executive Officer explaining why no revisions are necessary. The response submitted by the fuel pathway applicant must be approved by the Executive Officer before the application can be certified;

3. As specified in subsection 1, revise portions of the application in response to a subset of the comments received, and, as specified in subsection 2., submit a written response explaining why the remaining comments do not warrant revisions; or

4. Withdraw the application.

(B) The Executive Officer will evaluate the fuel pathway applicant's responses to the comments received, and determine whether they have adequately addressed the potential factual or methodological errors identified in those comments. If deemed adequate, those responses will be posted to the LCFS web site, and the pathway (revised as needed) will be certified and posted to the LCFS web site. If the applicant fails to submit responses or the responses are deemed inadequate, the application will be denied.

(C) If no public comments are received, the application will be certified and posted to the LCFS web site.

(6) *Certification.* The Executive Officer may certify or reject a pathway application. Upon certification of a Tier 2 application, the pathway will be available for reporting for the quarter in which it was deemed complete. Upon certification, the fuel pathway applicant(s) becomes the fuel pathway holder(s) for the certified fuel pathway and is subject to the requirements of 95488.10 in order for that pathway to remain eligible for reporting and credit generation purposes.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

§ 95488.8. Fuel Pathway Application Requirements Applying to All Classifications.

(a) *Requirements for Attestation Letter*. Each fuel pathway application must include a fuel pathway applicant attestation letter. The attestation letter must attest to the veracity of the information in the application packet and declare that the information submitted accurately represents the long-term, steady state operation of the fuel production process described in the application packet. The attestation letter must conform to the requirements of this subsection. The fuel pathway applicant attestation letter must make the following specific attestations:

(1) No products, co-products, by-products, or wastes undergo additional processing, such as drying, distillation, or clean-up, once they leave the production facility, except as explicitly included in the pathway life cycle analysis and pathway CI.

(2) All data and information supplied is true and accurate in all areas, including, but not limited to the following:

(A) Feedstocks used to produce the fuel;
(B) Fuel and feedstock production technology;
(C) Regions in which feedstocks and finished fuel are produced;
(D) Modes used to transport feedstocks and finished fuel and the transport distances involved;
(E) Types and amounts of thermal and electrical energy consumed in both feedstock and finished fuel production;
(F) Full life cycle carbon intensity, which must be no higher than the carbon intensity specified in the Lookup Table, or Tier 1 or Tier 2 application; and
(G) Fuel production operations.

(3) The signed LCFS fuel pathway applicant attestation letter must:

(A) Be submitted as an electronic copy;
(B) Be on company letterhead;
(C) Be signed by an officer of the applicant with the legal authority to attest to the veracity of the information in the application and to sign on behalf of the applicant;
(D) Be from the applicant and not from an entity representing the applicant (such as a consultant or legal counsel); and
(E) Include the following attestation:

I certify that the current fuel production process used to produce _____ (fuel) at the _____ facility is consistent in all of the following areas with all information submitted to CARB in connection with the pathway request: 1) feedstocks used in fuel production; 2) fuel and feedstock production technology; 3) geographic region in which feedstocks and finished fuel are produced; 4) transportation modes used to transport feedstocks and finished fuel and transport distances; 5) types and amounts of thermal and

electrical energy consumed in both feedstock and finished fuel production; and 6) any other applicable fuel pathway standard or operating condition established by CARB. The carbon intensity (CI) of the fuel must be no higher than the CI for the certified FPC.

I understand that the following facility information will be posted on the LCFS web site: Facility Name, Facility Address, Company ID, Facility ID, Fuel Pathway Code(s), CI values, and Fuel Pathway Description(s).

By submitting this form, _____(Fuel Pathway Applicant) accepts responsibility for the information herein provided to CARB. I certify under penalty of perjury under the laws of the State of California that I have personally examined, and am familiar with, the statements and information submitted in this document. I certify that the statements and information submitted to CARB are true, accurate, and complete.

_____	_____	_____
Signature	Print Name & Title	Date

(b) If the Executive Officer at any time determines that a certified fuel pathway does not meet the requirements of this subarticle or the operational conditions specified in the pathway summary issued by the Executive Officer, the Executive Officer may revoke or modify the certification.

(c) *Designation of Confidential Business Information.* The definition of "confidential business information," for the purposes of this section, is the same as the definition of "trade secret" found in Government Code, section 6254.7. All documents (including spreadsheets and other items not in a standard document format) that are designated to contain confidential business information (CBI) must prominently display the phrase "Contains Confidential Business Information" above the main document title and in a running header. Additionally, a separate, redacted version of such documents must also be submitted. The redacted versions must be approved by the applicant for public posting on LCFS web site. Specific redactions must be replaced with the phrase "Confidential business information has been redacted by the applicant." This phrase must be displayed clearly wherever CBI has been redacted. If the applicant claims that information it submits is confidential, it must also provide contact information required by California Code of Regulations, title 17, section 91011.

(d) *Public Disclosure of Application Materials and Use of Application Materials in the LCFS Data Management System.*

(1) All information not identified as trade secrets are subject to public disclosure pursuant to California Code of Regulations, title 17, sections 91000 through 91022 and the California Public Records Act (Government Code §§ 6250 et seq.); and

(2) If the application is certified by the Executive Officer, the carbon intensity value(s) and its associated fuel pathway code(s) will be posted publicly on the LCFS web site and incorporated into the LCFS Data Management System for use by fuel reporting entities.

(e) *Submittal Formats.*

(1) An application, supporting documents, and all other relevant data or calculation or other documentation must be submitted electronically via the AFP unless the Executive Officer has approved or requested in writing another format.

(2) The fuel pathway applicant must not convert spreadsheets, including CA-GREET3.0 spreadsheets, into other file formats or otherwise take steps to prevent the Executive Officer from examining all values and calculations in those spreadsheets.

(f) *Additional Demonstrations.* Upon request from the Executive Officer, a fuel pathway application must meet the following requirements:

(1) Demonstrate that the fuel that will be produced under the proposed pathway would comply with all applicable ASTM or other generally recognized national consensus standards; and

(2) Demonstrate that the fuel that will be produced under the proposed pathway is not exempt from the LCFS under section 95482(c).

(g) *Specified Source Feedstocks.*

(1) *Pathways Utilizing a Specified Source Feedstock.* In order to be eligible for a reduced CI that reflects the lower emissions or credit associated with the use of a waste, residue, by-product or similar material as feedstock in a fuel pathway, fuel pathway applicants must meet the following requirements.

(A) *Specified source feedstocks include:*

1. Used cooking oil, animal fats, fish oil, yellow grease, distiller's corn oil, distiller's sorghum oil, brown grease, and other fats/oils/greases that are the non-primary products of commercial or industrial processes for food, fuel or other consumer products, which are used as feedstocks in pathways for biodiesel, renewable diesel, alternative jet fuel, and co-processed refinery products;
2. Biomethane supplied using book-and-claim accounting pursuant to section 95488.8(i)(2) and is claimed as

feedstock in pathways for bio-CNG, bio-LNG, bio-L-CNG, and hydrogen via steam methane reformation;

3. Any feedstock whose supplier applies for separate CARB recognition using site-specific CI data; and
4. Other feedstocks designated as specified-source at the time of pathway review and prior to certification.

(B) *Chain-of-custody Evidence.* Fuel pathway applicants using specified source feedstocks must maintain either (1) delivery records that show shipments of feedstock type and quantity directly from the point of origin to the fuel production facility, or (2) information from material balance or energy balance systems that control and record the assignment of input characteristics to output quantities at relevant points along the feedstock supply chain between the point of origin and the fuel production facility. Chain-of-custody evidence is used to demonstrate proper characterization and accurate quantity. Chain-of-custody evidence must be provided to the verifier and to CARB upon request. Joint Applicants may assume responsibility for different portions of the chain-of-custody evidence but each such entity must meet the following requirements to be eligible for a pathway that utilizes a specified source feedstock:

1. Maintain records of the type and quantity of feedstock obtained from each supplier, including Feedstock transaction records, Feedstock Transfer Documents pursuant to section 95488.8(g)(1)(C), weighbridge tickets, bills of lading or other documentation for all incoming and outgoing feedstocks;
2. Maintain records used for material balance and energy balance calculations.
3. Ensure CARB staff and verifier access to audit feedstock suppliers to demonstrate proper accounting of attributes and conformance with certified CI data.

(C) *Feedstock Transfer Documents.* A feedstock transfer document must prominently state the information specified below.

1. Transferor Company name, address and contact information;
2. Recipient Company name, address and contact information;
3. Type and amount of feedstock, including units;
4. Transaction date.

(h) *Renewable or Low-CI Process Energy.* Unless expressly provided elsewhere in this subarticle, indirect accounting mechanisms for renewable or low-CI process energy, such as the use of renewable energy certificates, cannot be used to

reduce CI. In order to qualify as a low-CI process energy source, energy from that source must be directly consumed in the production process as described in (1) and (2) below:

(1) Low-CI electricity must be supplied from generation equipment under the control of the pathway applicant. Such electricity must be able to demonstrate:

(A) Any renewable energy certificates or other environmental attributes associated with the energy are not produced, or are retired and not claimed under any other program with the exception of the federal RFS, and the market-based compliance mechanism set forth in title 17, California Code of Regulations Chapter 1, Subchapter 10, article 5 (commencing with section 95800).

(B) The generation equipment is directly connected through a dedicated line to a facility such that the generation and the load are both physically located on the customer side of the utility meter. The generation source may be grid-tied, but a dedicated connection must exist between the source and load.

(C) The facility's load is sufficient to match the amount of low-CI electricity claimed using a monthly balancing period.

(2) Biogas or biomethane must be physically supplied directly to the production facility. The applicant must submit the attestation set forth below in section 95488.8(i)(2)(C)2.

(3) Solar steam or heat generation must be physically supplied directly to the production facility, and any environmental attributes associated with the energy are not produced, or are retired and not claimed under any other program with the exception of the federal RFS, and the market-based compliance mechanism set forth in title 17, California Code of Regulations Chapter 1, Subchapter 10, article 5 (commencing with section 95800).

(i) *Indirect Accounting for Renewable or Low-CI Electricity and Biomethane.*

(1) *Book-and-Claim Accounting for Renewable or Low-CI Electricity Supplied as a Transportation Fuel or Used to Produce Hydrogen.* Reporting entities may use indirect accounting mechanisms for low-CI electricity supplied as a transportation fuel or for hydrogen production through electrolysis for transportation purposes (including hydrogen that is used in the production of a transportation fuel), provided the conditions set forth below are met:

(A) Reporting entities may report low-CI electricity used as a transportation fuel or as an input to hydrogen production delivered

through the grid without regard to physical traceability if it meets all requirements of this subarticle. The low-CI electricity must be supplied to the grid within a California Balancing Authority (or local balancing authority for hydrogen produced outside of California) or alternatively, meet the requirements of California Public Utilities Code section 399.16, subdivision (b)(1). Such book-and-claim accounting for low-CI electricity may span only three quarters. If a low-CI electricity quantity (and all associated environmental attributes, including a beneficial CI) is supplied to the grid in the first calendar quarter, the quantity claimed for LCFS reporting must be matched to grid electricity used as a transportation fuel or for hydrogen production no later than the end of the third calendar quarter. After that period is over, any unmatched low-CI electricity quantities expire for the purpose of LCFS reporting.

(B) Low-CI electricity can be indirectly supplied through a green tariff program (including the Green Tariff Shared Renewables program described in California Public Utilities Code Section 2831-2833) or other contractual electricity supply relationship that meets the following requirements:

1. Electricity is generated by, or supplied under contract to, the pathway applicant for all environmental attributes of the claimed electricity. In order to substantiate low-CI electricity claims, the applicant must make contracts available to the Executive Officer, upon request, to demonstrate that the electricity meets the requirements of this subarticle. Generation invoices or metering records are required to substantiate the quantity of low-CI electricity produced from the renewable assets. Monthly invoices must be unredacted copies of originals showing electricity sourced (in kWh) and contracted price;

2. All electricity procured by any LSE for the purpose of claiming a lower CI must be in addition to that required for compliance with the California Renewables Portfolio Standard (described in California Public Utilities Code sections 399.11-399.32) or, for hydrogen produced outside of California, in addition to local renewable portfolio requirements;

3. Renewable energy certificates or other environmental attributes associated with the electricity, if any, are retired and not claimed under any other program with the exception of the federal RFS, and the market-based compliance mechanism set forth in title 17, California Code of

Regulations Chapter 1, Subchapter 10, article 5 (commencing with section 95800). 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.

(2) *Book-and-Claim Accounting for Pipeline-Injected Biomethane Used as a Transportation Fuel or to Produce Hydrogen.* Indirect accounting may be used for RNG used as a transportation fuel or to produce hydrogen for transportation purposes (including hydrogen that is used in the production of a transportation fuel), provided the conditions set forth below are met:

(A) RNG injected into the common carrier pipeline in North America (and thus comingled with fossil natural gas) can be reported as dispensed as bio-CNG, bio-LNG, or bio-L-CNG, or as an input to hydrogen production, without regards to physical traceability. Entities may report natural gas as RNG within only a three-quarter time span. If a quantity of RNG (and all associated environmental attributes, including a beneficial CI) is pipeline-injected in the first calendar quarter, the quantity claimed for LCFS reporting must be matched to natural gas sold in California as RNG no later than the end of the third calendar quarter. After that period is over, any unmatched RNG quantities expire for the purpose of LCFS reporting.

(B) To substantiate RNG quantities injected into the pipeline for dispensing as bio-CNG, bio-LNG, or bio-L-CNG or as an input to hydrogen production, the pathway application and subsequent Annual Fuel Pathway Reports must include the following documents linking the environmental attributes of RNG (in MMBtu or Therms) with corresponding quantities of natural gas withdrawn: unredacted monthly invoices showing the quantities of RNG (in MMBtu) sourced and the contracted price per unit; and the unredacted contract by which the fuel pathway holder obtained the environmental attributes.

(C) *Attestations Regarding Environmental Attributes.*

1. *Upstream Attestations.* An entity reporting any RNG as a transportation fuel in LRT-CBTS, and a fuel pathway holder using biogas or biomethane as feedstock or process energy, must obtain and keep attestations from each upstream party collectively demonstrating that (a) the entity claiming the environmental attributes has the exclusive right to claim environmental attributes associated with the sale or use of the biogas or biomethane, and (b) the environmental

attributes have not been used or claimed in any other program or jurisdictions with the exception of the federal RFS, and the market-based compliance mechanism set forth in title 17, California Code of Regulations Chapter 1, Subchapter 10, article 5 (commencing with section 95800). The attestations must be made available to the Executive Officer or a verifier upon request. The inability to promptly produce the attestations constitutes ground for credit invalidation pursuant to section 95495.

2. *Attestation to CARB.* An officer of any entity reporting biomethane in LRT-CBTS under the provisions of section 95488.8(i)(2), and an officer of any fuel pathway holder claiming use of biogas or biomethane as process energy under the provisions of section 95488.8(h)(2), must annually submit the following attestation to the Executive Officer:

I certify that to the extent that the gas used in the fuel pathway or supplied as transportation fuel is characterized as biomethane, _____ (entity name) owns the exclusive rights to the corresponding environmental attributes.

_____ (entity name) has not sold, transferred, or retired those environmental attributes in any program or jurisdiction other than the federal RFS.

Based on diligent inquiry and review of contracts and attestations from our business partners, I certify under penalty of perjury under the laws of the State of California that no other party has or will sell, transfer, or retire the environmental attributes corresponding to the biomethane for which _____(entity name) claims credit in the LCFS program.

_____	_____	_____
Signature	Print Name & Title	Date

(j) *Measurement Accuracy.*

(1) *Calibration Requirement.* All measurement devices that log or record data for use in fuel pathway applications must comply with the manufacturer-recommended calibration frequency and precision requirements. If manufacturer-recommendations are not provided, the measurement devices must be calibrated every six years.

(2) *Requests to Postpone Calibration*. For units and processes that operate continuously with infrequent outages, it may not be possible to meet manufacturer-recommended calibration deadlines for measurement devices. In such cases, the owner or operator may submit a written request to the Executive Officer to postpone calibration or inspection until the next scheduled maintenance outage. Such postponements are subject to the procedures of subsections (A) through (B) below and must be documented in the monitoring plan.

(A) A written request for postponement must be submitted to the Executive Officer not less than 30 days before the required calibration, recalibration or inspection date. The Executive Officer may request additional documentation to validate the operator's claim that the device meets the accuracy requirements of this section. The operator shall provide any additional documentation to CARB within ten (10) business days of a request by CARB.

(B) The request must include:

1. The date of the required calibration, recalibration, or inspection;
2. The date of the last calibration or inspection;
3. The date of the most recent field accuracy assessment, if applicable;
4. The results of the most recent field accuracy assessment, if applicable, clearly indicating a pass/fail status;
5. The proposed date for the next field accuracy assessment, if applicable;
6. The proposed date for calibration, recalibration, or inspection which must be during the time period of the next scheduled shutdown. If the next shutdown will not occur within three years, this must be noted and a new request must be received every three years until the shutdown occurs and the calibration, recalibration or inspection is completed.
7. A description of the meter or other device, including at a minimum:

    a. Make,
    b. Model,
    c. Install date,
    d. Location,
    e. Parameter measured by the meter or other device, including the data capture rate,
    f. Description of how data from the meter or other device is used in a fuel pathway,
    g. Calibration or inspection procedure,
    h. Reason for delaying calibration or inspection,
    i. Proposed method to ensure that the precision requirements listed by the manufacturer are upheld,
    j. Name, title, phone number and e-mail of contact person capable of responding to questions regarding the device.

(k) *Missing Data Provisions.*

(1) *Meter Record, Accuracy, or Calibration Requirements Not Met.* If a measurement device is not functional, not calibrated within the time period recommended by the manufacturer, or fails a field accuracy assessment, the operator must otherwise demonstrate to the verifier that the reported data are accurate within +/-5 percent.

(A) If the operator can demonstrate to the verifier that reported data are accurate, the data are acceptable. The entity must then provide a detailed plan describing when the measurement device will be brought into calibration. This plan is subject to approval by the Executive Officer.

(B) If the operator cannot demonstrate to the verifier that reported data are accurate, the data is not acceptable and missing data provisions apply.

(2) *Missing Data Provisions.* If missing data exists, the entity must submit for Executive Officer approval an alternate method of reporting the missing data. Alternate methods shall be evaluated on a case-by-case basis.

(3) *Force Majeure Events*. In the event of a facility shutdown or disruption drastically affecting production attributable to a force majeure event, the fuel pathway applicant or holder must notify the Executive Officer.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95488.9. Special Circumstances for Fuel Pathway Applications.

(a) *Substantiality Requirements.*

(1) The substantiality requirement applies in the two scenarios listed below. The substantiality requirement does not apply when re-applying for a Provisional pathway with a new operational data period due to a process change as described in 95488.9(c), or when replacing a certified CI after verification using the process described in 95488.10(a)(6).

(A) *Multiple applications for the same feedstock-fuel combination.* When a fuel pathway applicant applies for two or more pathways based on different inputs for the same feedstock-fuel combination

processed within an operational data period at a single fuel production facility, the Executive Officer will consider separate pathways only when the CI of one or more of the proposed pathways meet the substantiality requirement relative to the CI of the reference pathway. The "reference" pathway is the composite CI that results when the fuel is modeled using a single pathway that represents the average production of all quantities of the feedstock-fuel combination produced in the operational data period.

(B) *Tier 1 Pathways using Innovative Methods.* The Executive Officer will consider a Tier 2 application for a pathway that would otherwise be classified as Tier 1 if the Simplified CI Calculator for that fuel type cannot be used to accurately model the pathway due to process innovations and the proposed pathway meets the substantiality requirement relative to the CI of the reference pathway. The "reference" pathway is the CI of the proposed pathway as calculated by the applicable Simplified CI Calculator. The substantiality requirement does not apply to pathways that qualify for Tier 2 due to the use of low-CI process energy sources, or use of carbon capture, as described in 95488.1(d)(7).

(2) The applicant seeking to apply under one of the scenarios described in subsection (1), above, must demonstrate, to the Executive Officer's satisfaction, that the proposed pathway meets the following requirements:

(A) The source-to-tank carbon intensity of the fuel under the proposed pathway meets one of the following two criteria. "Source-to-tank" means all the steps involved in feedstock production and transport, finished fuel production and transport. A source-to-tank CI does not include the carbon intensity associated with the use of the fuel in a vehicle and does not include the LUC modifier.

1. For proposed pathway applications with source-to-tank carbon intensities greater than 20 gCO_2e/MJ (absolute value), that source-to-tank carbon intensity must be at least 5 percent lower than the source-to-tank carbon intensity of the reference pathway; or

2. For proposed pathway applications with source-to-tank carbon intensities of 20 gCO_2e/MJ (absolute value) or less, that source-to-tank carbon intensity must be at least 1 gCO_2e/MJ less than the source-to-tank carbon intensity of the reference pathway.

(b) *Temporary Fuel Pathways.*

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

(1) Fuel reporting entities may petition the Executive Officer to use a Temporary fuel pathway carbon intensity value for reporting quantities of fuel to generate credits or deficits.

(2) A Temporary pathway petition approved by the Executive Officer will allow the fuel reporting entity to use the pathway for LRT-CBTS reporting purposes for up to two quarters at a time. Reporting will be granted only for the quarter during which the Temporary pathway is approved for use and the subsequent full quarter. The Executive Officer may approve multiple subsequent petitions from the same fuel reporting entity, of up to two quarters each, but each approval will require a new petition.

(3) A petition to use a Temporary pathway must be submitted online in the AFP.

(4) *New Temporary Fuel Pathways.* An entity can apply for the use of a Temporary fuel pathway CI value if it appears in Table 8 in this subarticle or if the Executive Officer approves a new Temporary pathway (for a fuel or feedstock-fuel combination not found in Table 8) and publishes it on the LCFS web site. Any new Temporary pathway proposed by the Executive Officer will be posted for 45 days for public comment prior to certification. The posted information will include the rationale for assigning the CI to that particular Temporary pathway. If these comments require significant revision of the originally published pathway, a revised pathway will be posted for public comment. Upon certification of a new Temporary pathway created by the Executive Officer, the pathway will be available for reporting for the quarter in which it is certified.

Table 8. Temporary Pathways for Fuels with Indeterminate CIs

Fuel	Feedstock	Process Energy	CI (gCO_2e/MJ)
Ethanol	Corn	Grid electricity, natural gas, and/or renewables	90
	Grain Sorghum	Grid electricity, natural gas, and/or renewables	95
	Any Sugar Feedstock	Bagasse and straw only; no grid electricity	55
	Any Cellulosic Biomass	Grid electricity, natural gas, and/or renewables	50
Biomass-based Diesel	Fats/Oils/Grease Residues	Grid electricity, natural gas, and/or renewables	45
	Any feedstock derived from plant oils, excluding palm oil	Grid electricity, natural gas, and/or renewables	65

Fuel	Feedstock	Process Energy	CI (gCO_2e/MJ)
	Any other feedstock	Grid electricity, natural gas, and/or renewables	Baseline (2010) CI value for ULSD
Fossil LNG	Petroleum Natural Gas	N/A	95
Fossil L-CNG	Petroleum Natural Gas	N/A	100
Biomethane CNG	Landfill gas	Grid electricity, natural gas, and/or parasitic load	70
Biomethane LNG	Landfill gas	Grid electricity, natural gas, and/or parasitic load	85
Biomethane L-CNG	Landfill gas	Grid electricity, natural gas, and/or parasitic load	90
Biomethane CNG	Municipal Wastewater sludge, Food Scraps, Urban Landscaping Waste, or Other Organic Waste	Grid electricity, natural gas, and/or parasitic load	45
Biomethane LNG	Municipal Wastewater sludge, Food Scraps, Urban Landscaping Waste, or Other Organic Waste	Grid electricity, natural gas, and/or parasitic load	60
Biomethane L-CNG	Municipal Wastewater sludge, Food Scraps, Urban Landscaping Waste, or Other Organic Waste	Grid electricity, natural gas, and/or parasitic load	65
Biomethane CNG, LNG or L-CNG	Dairy Manure	Grid electricity, natural gas, and/or parasitic load	– 150
Hydrogen	Centralized SMR of fossil LNG	Grid electricity, natural gas and/or renewables	185
Any gasoline substitute feedstock-fuel combination not identified above	Any	Any	Baseline (2010) CI value for CaRFG
Any diesel substitute feedstock-fuel combination not identified above	Any	Any	Baseline (2010) CI value for ULSD

(c) *Provisional Pathways.* As set forth in sections 95488.6(a) and 95488.7(a), LCFS fuel pathways are generally developed based on 24 months of operational data.

The Executive Officer may consider Provisional pathway applications from 1) facilities that have been in operation for less than 24 months, or 2) existing facilities that can demonstrate a process change has been implemented, based on at least three months of operational data. Based on timely reports, the fuel reporting entity may generate credits or deficits using a provisionally-certified CI.

(1) *Application process*. Application requirements are the same as those for the applicable pathway classification, specified in sections 95488.6 and 95488.7 including validation of the data submitted in support of the provisional pathway application.

(2) *Verification schedule.* The certified pathway is subject to periodic verification as described in section 95500(b)(2) as applicable for the fuel pathway classification.

(3) *Adjusting CI and Credit Balance.* At any time during the 24 months following provisional certification, the Executive Officer may revise as appropriate the provisionally-certified CI. Until the Executive Officer has removed the provisional status pursuant to subsection (4) below, the Executive Officer may adjust the number of credits or reverse any credit in the fuel reporting entity's account using the provisional pathway without a hearing, notwithstanding the requirements of section 95495. At the end of the provisional period, the certified CI will be determined on the basis of 24 months of operational data.

(A) If the verified operational CI is higher than the provisionally-certified CI, the Executive Officer will replace the certified CI with the verified operational CI in the LRT-CBTS and will make any necessary credit adjustment in the fuel reporting entity's account using the provisional fuel pathway for reporting. Any credits generated using a provisionally-certified CI, across the entire period from original validation to completion of the periodic verification, are subject to adjustment.

(B) If the verified operational CI is lower than the provisionally-certified CI, the Executive Officer will certify the pathway with the lower CI, adding a conservative margin of safety per section 95488.4(a) if the applicant so desires. The fuel reporting entity will not be eligible for any retroactive credit generation for any quarter for which the reporting deadline has passed, but the revised CI will be valid for future reporting periods.

(4) *Removal of provisional status.* Positive or qualified positive verification statements covering at least 24 months of operational data will result in the removal of the provisional status for the certified pathway.

(d) *Substitute Pathways for Reporting Exports and Other Transaction Types.* If a fuel reporting entity is unable to determine the pathway for reporting a fuel transaction type listed in subsection (1) below, a Substitute pathway corresponding to the fuel type must be used for reporting. Substitute pathways have CI values based on weighted average CIs of that fuel in the prior year, and are provided on the LCFS web site.

(1) The Substitute pathways are only available in the LRT-CBTS for reporting the following transaction types:

(A) Sold without obligation
(B) Purchased without obligation
(C) Export
(D) Loss of inventory
(E) Not used for transportation

(2) When using a Substitute pathway, the fuel reporting entity must use default Company ID and Facility ID values for reporting in the LRT-CBTS. These default values are provided on the LCFS web site.

(e) *Design-based Pathways.* As set forth in sections 95488.6(a) and 95488.7(a), LCFS fuel pathways are generally developed based on 24 months of operational data. However, in order to encourage the development of innovative fuel technologies, an applicant may submit a Design-based pathway application in the AFP for a fully engineered and designed facility with no operational data.

(1) Applications for Design-based pathways must include a detailed life cycle analysis of the anticipated pathway performed using the CA-GREET3.0 model, and an LCA report as described in 95488.7(a)(2) detailing facility plans and specifications expected during commercial operation.

(2) The Executive Officer may, fully at his or her discretion, choose to conduct a detailed evaluation of the submitted information and evaluate whether the applicant provided a sufficient level of detail to warrant confidence in energy consumption and other key CI performance metrics. If the Executive Officer chooses to undertake such a review, and the Executive Officer agrees that the pathway warrants publication on the LCFS web site, a Design-based pathway summary will be posted for public comment as detailed in section 95488.7(d)(5) for Tier 2 pathways. Executive Officer approval of Design-based pathways will generally be contingent upon meeting the requirements detailed in section 95488.7, exclusive of the requirement to obtain a validation statement.

(3) *Ineligibility for credit generation.* Design-based pathways are not eligible to report fuel volumes to the LRT-CBTS or generate credits. After a pathway has been in production for at least three months, in order to be

eligible to report and generate credits, the applicant must complete a Provisional pathway application per section 95488.9(c).

(f) *Carbon Intensities that Reflect Avoided Methane Emissions from Dairy and Swine Manure or Organic Waste Diverted from Landfill Disposal*.

(1) A fuel pathway that utilizes biomethane from dairy cattle or swine manure digestion may be certified with a CI that reflects the reduction of greenhouse gas emissions achieved by the voluntary capture of methane, provided that:

(A) A biogas control system, or digester, is used to capture biomethane from manure management on dairy cattle and swine farms that would otherwise be vented to the atmosphere as a result of livestock operations from those farms.

(B) The baseline quantity of avoided methane reflected in the CI calculation is additional to any legal requirement for the capture and destruction of biomethane.

(2) A fuel pathway that utilizes an organic material may be certified with a CI that reflects the reduction of greenhouse gas emissions achieved by the voluntary diversion from decomposition in a landfill and the associated fugitive methane emissions, provided that:

(A) The organic material that is used as a feedstock would otherwise have been disposed of by landfilling, and the diversion is additional to any legal requirement for the diversion of organics from landfill disposal.

(B) Any degradable carbon that is not converted to fuel is subsequently treated in an aerobic system or otherwise is prevented from release as fugitive methane. Upon request, the applicant must demonstrate that emissions are not significant beyond the system boundary of the fuel pathway.

(C) The baseline quantity of avoided methane reflected in the CI calculation is additional to any legal requirement for the avoidance or capture and destruction of biomethane.

(3) Carbon intensities that reflect avoided methane emissions from dairy and swine manure or organic waste projects are subject to the following requirements for credit generation:

(A) *Crediting Periods.* Avoided methane crediting for dairy and swine manure pathways as described in (f)(1) above, and for landfill-

diversion pathways as described in (f)(2) above, is limited to three consecutive 10 years crediting periods, counting from the quarter following Executive Officer approval of the application. The pathway holder must formally request each subsequent crediting period for the project through the LRT-CBTS.

(B) Notwithstanding (A) above, in the event that any law, regulation, or legally binding mandate requiring either greenhouse gas emission reductions from manure methane emissions from livestock and dairy projects or diversion of organic material from landfill disposal, comes into effect in California during a project's crediting period, then the project is only eligible to continue to receive LCFS credits for those greenhouse gas emission reductions for the remainder of the project's current crediting period. The project may not request any subsequent crediting periods.

(C) Notwithstanding (A) above, projects that have generated CARB Compliance Offset Credits under the market-based compliance mechanism set forth in title 17, California Code of Regulations Chapter 1, Subchapter 10, article 5 (commencing with section 95800) may apply to receive credits under the LCFS. However, the LCFS crediting period for such projects is aligned with the crediting period for Compliance Offset Credits, and does not reset when the project is certified under the LCFS.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95488.10. Maintaining Fuel Pathways.

(a) *CI Data Reporting Requirement and Deadline.* Beginning in 2021, each fuel pathway holder must submit an annual Fuel Pathway Report to the AFP no later than March 31 of each calendar year.

(1) The annual Fuel Pathway Report must include the certified version of the Simplified CI Calculator or the CA-GREET3.0 model, if required in the initial certification, updated to include the most recent two calendar years of operational data.

(2) The annual Fuel Pathway Report for Lookup Table pathways listed in 95488.1(b)(2), in lieu of the CI calculator, must include invoices or

metering records substantiating the quantity of renewable or low-CI inputs procured from a qualifying source.

(3) Entities specified in section 95488.8(i)(2)(C) must provide the annual attestation regarding environmental attributes required by that provision.

(4) Any fuel pathway holder, including a joint applicant, who is not subject to site visits by a third party verifier, whose pathway involves the use of renewable or low-CI process energy, must submit invoices for that energy to the AFP. Additionally, for any electricity that is used to reduce carbon intensity of electricity used as a transportation fuel or hydrogen production via electrolysis, the pathway holder must upload records demonstrating that any renewable energy certificates generated were retired in WREGIS for the purpose of LCFS credit generation.

(5) The annual Fuel Pathway Report must include any temporally-variable information requested by the Executive Officer to be included in the initial application as supplementary information, or required data or documentation listed in the pathway summary operating conditions, must continue to be submitted annually as part of the annual Fuel Pathway Report.

(6) If the verified operational CI as calculated from production data covering the 24 months of operations is found to be lower than the certified CI, and a positive verification statement is issued for this period, the following options are available:

(A) The fuel pathway holder may elect to keep the original certified CI.

(B) The fuel pathway holder may request to replace the certified CI with the verified operational CI based on the most recent 24 months of operational data, adding a conservative margin of safety per section 95488.4(a) if the applicant so desires. Fuel pathway holders requesting to replace the certified CI must submit an attestation that the new CI can be maintained through the next reporting period, and acknowledging that exceeding the newly certified CI in subsequent verifications will constitute non-compliance with the requirements of this subarticle.

(7) If the verified operational CI is found to be greater than the certified CI, the fuel pathway holder is out of compliance with this subarticle and subject to investigation by the Executive Officer and possible enforcement action.

(b) *Monitoring Plan for Entities Required to Obtain Validation or Verification Services under the LCFS*. Each entity responsible for obtaining validation or verification under this subarticle must complete and retain for review by a verifier, or the

Executive Officer, a written Monitoring Plan. Specific requirements for Monitoring Plans are detailed in section 95491.1(c).

(c) *Verification Requirement and Deadline.* Each fuel pathway holder, who is not exempt from obtaining verification in section 95500, must ensure that a positive or qualified positive verification statement covering the annual Fuel Pathway Report is received by the Executive Officer from the verification body pursuant to the schedule in 95500 in order to maintain a valid fuel pathway code for use in reporting fuel transactions. An adverse fuel pathway verification statement would result in investigation by the Executive Officer. It is the responsibility of the fuel pathway holder to ensure this deadline is met.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95489. Provisions for Petroleum-Based Fuels.

(a) *Deficit Calculation for CARBOB or Diesel Fuel.* A fuel reporting entity for CARBOB or diesel fuel must calculate separately the base deficit and incremental deficit for each fuel or blendstock derived from petroleum feedstock as specified in this provision.

Base Deficit Calculation

$$Deficits_{Base}^{XD}(MT) = (CI_{Standard}^{XD} - CI_{BaselineAve}^{XD}) \times E^{XD} \times C$$

Incremental Deficit Calculation to Mitigate Increases in the Carbon Intensity of Crude Oil

If $CI_{20XXCrudeAve} > CI_{BaselineCrudeAve} + 0.10$ *then:*

$$Deficits_{Incremental20XX}^{XD} = (CI_{BaselineCrudeAve} - CI_{20XXCrudeAve}) \times E^{XD} \times C$$

If $CI_{20XXCrudeAve} \leq CI_{BaselineCrudeAve} + 0.10$ *then:*

$$Deficits_{Incremental20XX}^{XD} = 0$$

where:

$Deficits_{Base}^{XD}(MT)$ and $Deficits_{Incremental20XX}^{XD}$ mean the amount of LCFS deficits incurred (a negative value), in metric tons, by the volume of CARBOB (XD = "CARBOB") and diesel fuel (XD = "diesel") that is derived from petroleum feedstock and is either produced in or imported into California during a specific calendar year;

$CI_{Standard}^{XD}$ has the same meaning as specified in section 95486.1(a);

$CI_{BaselineAve}^{XD}$ is the average carbon intensity value of CARBOB or diesel, in gCO_2e/MJ, that is derived from petroleum feedstock and is either produced in or imported into California during the baseline calendar year, 2010. For purposes of this provision, $CI_{BaselineAve}^{XD}$ for CARBOB (XD = "CARBOB") and diesel fuel (XD = "diesel") are the Baseline Average carbon intensity values for CARBOB and diesel (ULSD) set forth in Table 7-1. The Baseline Average carbon intensity values for CARBOB and diesel (ULSD) are calculated using data for crude oil supplied to California refineries during the baseline calendar year, 2010.

$CI_{BaselineCrudeAve}$ is the California Baseline Crude Average carbon intensity value, in gCO_2e/MJ, attributed to the production and transport of the crude oil supplied as petroleum feedstock to California refineries during the baseline calendar year, 2010. For comparison to $CI_{2018CrudeAve}$, the baseline is:

$$CI_{BaselineCrudeAve} = \frac{[11.98 \times V_{2016} + 11.98 \times V_{2017} + 11.78 \times V_{2018}]}{[V_{2016} + V_{2017} + V_{2018}]}$$

For comparison to $CI_{2019CrudeAve}$, the baseline is:

$$CI_{BaselineCrudeAve} = \frac{[11.98 \times V_{2017} + 11.78 \times V_{2018} + 11.78 \times V_{2019}]}{[V_{2017} + V_{2018} + V_{2019}]}$$

For comparison to $CI_{2020CrudeAve}$ and subsequent years, the baseline is

$$CI_{BaselineCrudeAve} = 11.78$$

$CI_{20XXCrudeAve}$ is the Three-year California Crude Average carbon intensity value, in gCO_2e/MJ, attributed to the production and transport of the crude oil supplied as petroleum feedstock to California refineries during the most recent three calendar years. For example, the Three-year California Crude Average carbon intensity value for 2018 is:

$$CI_{2018CrudeAve} = \frac{[CI_{2016} \times V_{2016} + CI_{2017} \times V_{2017} + CI_{2018} \times V_{2018}]}{[V_{2016} + V_{2017} + V_{2018}]}$$

V_{20XX} is the total volume of crude supplied to California refineries during the specified year 20XX.

CI_{20XX} is the Annual Crude Average carbon intensity value, calculated annually as described in section 95489(b). The Annual Crude Average carbon intensity value for 2016 and 2017 are specified in Table 9.

E^{XD} is the amount of fuel energy, in MJ, from CARBOB (XD = "CARBOB") or diesel (XD = "diesel"), determined from the energy density conversion factors in Table 4, either produced in California or imported into California during a specific calendar year and sold, supplied, or offered for sale in California.

$$C = 1.0 \times 10^{-6} \frac{MT}{gCO_2e}$$

(b) *Addition of Incremental Deficits that Result from Increases in the Carbon Intensity of Crude Oil to a Fuel Reporting Entity's Compliance Obligation.*

(1) Incremental deficits for CARBOB or diesel fuel that result from increases in the carbon intensity of crude oil will be calculated and added to each affected fuel reporting entity's compliance obligation for the compliance period in which the $Deficits^{XD}_{Incremental20XX}$ become effective, which will be the year following the year in which the $CI_{20XXCrudeAve}$ was established.

(2) Incremental deficits for CARBOB or diesel fuel for each fuel reporting entity will be based upon the amount of CARBOB and diesel fuel supplied by the fuel reporting entity in each compliance period for which the $Deficits^{XD}_{Incremental20XX}$ are effective.

(3) *Process for Calculating the Annual Crude Average Carbon Intensity Value*.

(A) An Annual Crude Average carbon intensity value will be calculated for each calendar year using a volume-weighted average of crude carbon intensity values. The volume for each imported crude will be the total volume of that crude reported by all fuel reporting entities in the Annual Compliance Reports for the calendar year. Volume contributions for California State fields will be based on oil production data from the California Department of Conservation and volume contributions for California Federal Offshore fields will be based on oil production data from the Bureau of Safety and Environmental Enforcement. Field production volumes for California-produced crude will be reduced, if necessary, to account for crude exports. Crude carbon intensity values are those listed in Table 9. For crude names not listed, the default carbon intensity value from Table 9 will be used until the crude name and carbon

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

intensity value is added to Table 9 as described in section 95489(b)(3).

(B) Within 15 days of receiving the Annual Compliance reports, the Executive Officer shall post the Annual Crude Average carbon intensity calculation at the LCFS web site for public comment. Written comments shall be accepted for 15 days following the date on which the analysis was posted. Only comments related to potential factual or methodological errors in the posted Annual Crude Average carbon intensity value may be considered. The Executive Officer shall evaluate the comments received and, if the Executive Officer deems it necessary, may request in writing additional information or clarification from the commenters. Commenters shall be provided 10 days to respond to these requests. The Executive Officer shall post the final Annual Crude Average carbon intensity value at the LCFS web site within 15 days of receiving positive or qualified positive MCON verification reports per section 95500. An adverse verification statement would result in Executive Officer investigation and may result in delay of finalizing and posting the Annual Crude Average carbon intensity value.

(C) Revisions to the OPGEE model, addition of crudes to Table 9, and updates to all carbon intensity values listed in Table 9 will be considered on a three-year cycle through proposed amendments of the Low Carbon Fuel Standard regulation.

Table 9. Carbon Intensity Lookup Table for Crude Oil Production and Transport.

Country of Origin	Crude Identifier	Carbon Intensity (gCO_2e/MJ)
Baseline Crude Average*	California Baseline Crude Average applicable to crudes supplied during 2018 and subsequent years	11.78
	California Baseline Crude Average applicable to crudes supplied in 2016 and 2017	11.98
Annual Crude Average	Volume-weighted California average CI for crudes supplied during 2016	12.14
Annual Crude Average	Volume-weighted California average CI for crudes supplied during 2017	11.93
Algeria	Saharan	14.77
Angola	Cabinda	8.99
	Clov	7.31
	Dalia	8.90

	Gimboa	8.86
	Girassol	9.95
	Greater Plutonio	8.72
	Hungo	8.23
	Kissanje	8.66
	Mondo	8.98
	Nemba	9.08
	Pazflor	8.02
	Sangos	7.06
Argentina	Canadon Seco	10.16
	Escalante	10.15
	Hydra	7.77
	Medanito	10.78
Australia	Enfield	6.84
	Pyrenees	8.24
	Stybarrow	7.84
	Van Gogh	8.46
	Vincent	6.83
Azerbaijan	Azeri	6.40
Belize	Belize Light	9.70
Brazil	Albacora Leste	5.99
	Bijupira-Salema	7.18
	Frade	5.63
	Iracema	5.54
	Jubarte	6.28
	Lula	6.24
	Marlim	6.76
	Marlim Sul	7.78
	Ostra	5.65
	Papa Terra	4.29
	Peregrino	4.16
	Polvo	4.31
	Roncador	6.77
	Roncador Heavy	6.45
	Sapinhoa	6.00
	Tubarao Azul	5.45
	Tubarao Martelo	5.37

Cameroon	Lokele	19.27
Canada	Access Western Blend	15.15
	Albian Heavy Synthetic (all grades)	23.68
	BC Light	8.11
	Bonnie Glen	8.11
	Borealis Heavy Blend	15.41
	Boundary Lake	8.11
	Bow River	9.42
	Cardium	8.11
	Christina Dilbit Blend	12.71
	Christina Synbit	18.66
	Cold Lake	17.87
	Conventional Heavy	9.42
	CNRL Light Sweet Synthetic	25.27
	Federated	8.11
	Fosterton	9.42
	Gibson Light Sweet	8.11
	Halkirk	8.11
	Hardisty Light	8.11
	Hardisty Synthetic	36.39
	Husky Synthetic	32.66
	Joarcam	8.11
	Kearl Lake	12.89
	Kerrobert Sweet	8.11
	Koch Alberta	8.11
	Light Sour Blend	8.11
	Light Sweet	8.11
	Lloyd Blend	9.42
	Lloyd Kerrobert	9.42
	Lloydminster	9.42
	Long Lake Heavy	30.54
	Long Lake Light Synthetic	40.12
	Mackay Heavy Blend	20.43
	Medium Gibson Sour	8.11
	Medium Sour Blend	8.11
	Midale	8.11
	Mixed Sour Blend	8.11

	Mixed Sweet	8.11
	Moose Jaw Tops	8.11
	Peace	8.11
	Peace Pipe Sour	8.11
	Peace River Heavy	19.21
	Peace River Sour	8.11
	Pembina	8.11
	Pembina Light Sour	8.11
	Premium Albian Synthetic	29.49
	Premium Conventional Heavy	9.42
	Premium Synthetic	27.38
	Rainbow	8.11
	Rangeland Sweet	8.11
	Redwater	8.11
	Seal Heavy	9.42
	Shell Synthetic (all grades)	29.49
	Smiley-Coleville	9.42
	Sour High Edmonton	8.11
	Sour Light Edmonton	8.11
	Statoil Cheecham Dilbit	16.41
	Statoil Cheecham Synbit	21.08
	Suncor Synthetic (all grades)	27.09
	Surmont Heavy Blend	22.48
	Synbit Blend	22.64
	Syncrude Synthetic (all grades)	31.62
	Synthetic Sweet Blend	29.36
	Tundra Sweet	8.11
	Wabasca	6.88
	Western Canadian Blend	9.42
	Western Canadian Select	19.04
Chad	Doba	11.42
Colombia	Acordionero	6.96
	Cano Limon	9.29
	Castilla	10.55
	Cusiana	9.99
	Magdalena	22.28
	Rubiales	9.79

	South Blend	9.25
	Vasconia	9.62
Congo	Azurite	10.25
	Djeno	10.73
Ecuador	Napo	8.31
	Oriente	10.07
Equatorial Guinea	Ceiba	7.82
	Zafiro	20.56
Ghana	Ten Blend	8.08
Iran	Dorood	12.65
	Forozan	21.97
	Iran Heavy	13.25
	Iran Light	14.35
	Lavan	11.11
	Nowruz-Soroosh	10.53
	Sirri	10.15
Iraq	Basra Light	13.45
	Basra Heavy	10.69
Kuwait	Kuwait	10.56
Libya	Amna	15.82
Malaysia	Tapis	12.73
Mauritania	Chinquetti	13.74
Mexico	Isthmus	11.31
	Isthmus Topped	14.31
	Maya	7.85
Neutral Zone	Eocene	7.85
	Khafji	7.84
	Ratawi	9.42
Nigeria	Agbami	12.04
	Amenam	10.65
	Antan	21.98
	Bonga	5.06
	Bonny	9.91
	Brass	14.27
	EA	6.66
	Erha	10.91
	Escravos	12.00

	Forcados	8.97
	Okono	8.67
	OKWB	22.76
	Pennington	11.18
	Qua Iboe	11.45
	Yoho	11.45
Oman	Oman	13.32
Peru	Loreto	9.86
	Mayna	11.07
	Pirana	8.43
Russia	ESPO	11.55
	M100	17.35
	Sokol	6.94
	Vityaz	9.60
Saudi Arabia	Arab Extra Light	9.41
	Arab Light	9.23
	Arab Medium	8.72
	Arab Heavy	7.92
Thailand	Bualuang	4.07
Trinidad	Calypso	7.41
	Galeota	11.41
UAE	Murban	10.01
	Upper Zakum	7.96
Venezuela	Bachaquero	28.75
	Boscan	13.91
	Hamaca	23.04
	Hamaca DCO	10.02
	Laguna	28.75
	Mesa 30	12.49
	Petrozuata (all synthetic grades)	23.09
	Santa Barbara	17.32
	Zuata (all synthetic grades)	23.04
US Alaska	Alaska North Slope	15.91
US Colorado	Niobrara	6.81
US Gulf of Mexico	Mars	6.62
US Louisiana	GCA	8.72
US New Mexico	Four Corners	11.11

	New Mexico Intermediate	11.11
	New Mexico Sour	11.11
	New Mexican Sweet	11.11
US North Dakota	Bakken	9.73
	North Dakota Sweet	9.73
	Williston Basin Sweet	9.73
US Oklahoma	Oklahoma Sour	11.93
	Oklahoma Sweet	11.93
US Texas	Eagle Ford Shale	11.93
	East Texas	11.93
	North Texas Sweet	11.93
	South Texas Sweet	11.93
	West Texas Intermediate	11.93
	West Texas Sour	11.93
US Utah	Covenant	4.43
	Grand Cane	6.92
	Utah Black Wax	5.85
	Utah Sweet	6.92
US Wyoming	Wyoming Sweet	10.98
US California Fields	Aliso Canyon	4.94
	Ant Hill	20.81
	Antelope Hills	2.84
	Antelope Hills, North	24.75
	Arroyo Grande	31.11
	Asphalto	8.01
	Bandini	3.09
	Bardsdale	3.47
	Barham Ranch	4.15
	Beer Nose	3.98
	Belgian Anticline	5.01
	Bellevue	5.95
	Bellevue, West	6.60
	Belmont, Offshore	5.12
	Belridge, North	4.11
	Belridge, South	17.09
	Beverly Hills	5.41
	Big Mountain	4.65

	Blackwells Corner	3.07
	Brea-Olinda	3.59
	Buena Vista	7.44
	Burrel	29.43
	Cabrillo	4.14
	Canal	4.40
	Canfield Ranch	4.53
	Carneros Creek	4.06
	Cascade	3.00
	Casmalia	10.26
	Castaic Hills	2.68
	Cat Canyon	7.83
	Cheviot Hills	3.49
	Chico-Martinez	48.13
	Cienaga Canyon	5.78
	Coalinga	25.81
	Coles Levee, N	4.09
	Coles Levee, S	5.87
	Comanche Point	5.03
	Coyote, East	5.96
	Cuyama, South	14.70
	Cymric	15.69
	Deer Creek	11.51
	Del Valle	5.78
	Devils Den	7.51
	Dominguez	3.57
	Edison	14.53
	El Segundo	4.38
	Elk Hills	8.02
	Elwood, S., Offshore	3.52
	Fruitvale	3.75
	Greeley	7.91
	Hasley Canyon	2.25
	Helm	3.99
	Holser	3.80
	Honor Rancho	3.43
	Huntington Beach	6.62

	Hyperion	1.90
	Inglewood	10.06
	Jacalitos	2.72
	Jasmin	16.59
	Kern Bluff	12.54
	Kern Front	35.68
	Kern River	15.09
	Kettleman Middle Dome	3.93
	Kettleman North Dome	3.42
	Landslide	12.53
	Las Cienegas	4.96
	Livermore	2.66
	Lompoc	28.45
	Long Beach	5.48
	Long Beach Airport	4.92
	Los Angeles Downtown	5.89
	Los Angeles, East	14.71
	Lost Hills	12.99
	Lost Hills, Northwest	5.36
	Lynch Canyon	23.10
	Mahala	4.99
	McCool Ranch	9.59
	McDonald Anticline	4.33
	McKittrick	25.31
	Midway-Sunset	29.33
	Montalvo, West	2.65
	Montebello	17.03
	Monument Junction	4.95
	Mount Poso	3.71
	Mountain View	3.97
	Newhall-Potrero	3.66
	Newport, West	5.21
	Oak Canyon	4.04
	Oak Park	3.01
	Oakridge	3.46
	Oat Mountain	3.17
	Ojai	4.94

	Olive	1.82
	Orcutt	11.76
	Oxnard	5.39
	Paloma	4.88
	Placerita	32.78
	Playa Del Rey	6.87
	Pleito	2.09
	Poso Creek	21.96
	Pyramid Hills	3.36
	Railroad Gap	7.08
	Raisin City	9.13
	Ramona	4.47
	Richfield	4.75
	Rincon	4.88
	Rio Bravo	6.98
	Rio Viejo	2.74
	Riverdale	3.80
	Rose	2.91
	Rosecrans	5.76
	Rosecrans, South	3.54
	Rosedale	2.35
	Rosedale Ranch	8.32
	Round Mountain	24.04
	Russell Ranch	8.58
	Salt Lake	3.18
	Salt Lake, South	6.34
	San Ardo	26.42
	San Miguelito	5.25
	San Vicente	3.22
	Sansinena	3.21
	Santa Clara Avenue	3.53
	Santa Fe Springs	12.53
	Santa Maria Valley	4.80
	Santa Susana	5.29
	Sargent	4.00
	Saticoy	3.68
	Sawtelle	2.56

	Seal Beach	5.19
	Semitropic	4.30
	Sespe	3.98
	Shafter, North	3.32
	Shiells Canyon	5.07
	South Mountain	3.58
	Stockdale	2.18
	Tapia	6.92
	Tapo Canyon, South	3.08
	Tejon	13.77
	Tejon Hills	9.39
	Tejon, North	5.63
	Temescal	3.40
	Ten Section	7.50
	Timber Canyon	4.74
	Torrance	3.99
	Torrey Canyon	3.52
	Union Avenue	5.58
	Vallecitos	4.53
	Ventura	4.54
	Wayside Canyon	2.36
	West Mountain	3.53
	Wheeler Ridge	2.80
	White Wolf	1.92
	Whittier	3.71
	Wilmington	8.31
	Yowlumne	13.90
	Zaca	9.53
US Federal OCS	Beta	1.59
	Carpinteria	3.28
	Dos Cuadras	4.57
	Hondo	5.93
	Hueneme	4.67
	Pescado	7.07
	Point Arguello	14.07
	Point Pedernales	8.26
	Sacate	4.77

	Santa Clara	2.46
	Sockey	13.09
Default		11.78

* Based on production and transport of the crude oil supplied to the indicated California refinery(ies) during the baseline calendar year, 2010.

(c) *Credits for Producing and Transporting Crudes using Innovative Methods.* Credits may be generated for crude oil that has been produced or transported using innovative methods and delivered to California refineries for processing.

(1) *General Requirements.*

(A) For the purpose of this section, an innovative method means crude production or transport using one or more of the following technologies:

1. Solar steam generation (generated steam of 45 percent quality or greater). Steam must be used onsite at the crude oil production or transport facilities.
2. Carbon capture and sequestration (CCS). Carbon capture must take place onsite at the crude oil production or transport facilities.
3. Solar or wind electricity generation. To qualify for the credit, electricity must be produced and consumed onsite or be provided directly to the crude oil production or transport facilities from a third-party generator and not through a utility owned transmission or distribution network. Energy storage may be used to increase the quantity of electricity supplied to crude oil production or transport facilities from intermittent solar and wind electricity generation sources.
4. Solar heat generation including, but not limited to, boiler water preheating and solar steam generation with a steam quality of less than 45 percent. Heat must be used onsite at the crude oil production or transport facilities.
5. Renewable natural gas (RNG) or biogas energy. RNG or biogas must be physically supplied directly to the crude oil production or transport facilities.

(B) The innovative method must become operational no earlier than 2010 for solar steam and CCS projects or January 1, 2015, for any other innovative method above. Any project must be approved for use by the Executive Officer before generating credit under the LCFS regulation. Projects that utilize carbon capture and sequestration are subject to the provisions of section 95490. No credits may be generated for any quarter preceding the quarter in which the application is approved.

(C) The project operator must initiate review of the opt-in project using the innovative method through a written application to the Executive Officer. If the innovative method involves steam, heat, or electricity produced by a third party and delivered to the crude oil producer or transporter, both the crude producer or transporter and the third party must apply and will be considered joint applicant project operator for approval of the innovative method. If more than one crude producer or transporter receives steam, heat, or electricity from a single third-party facility, each crude producer or transporter must submit an independent application with the third party as a joint applicant on each submittal. If the innovative method involves delivery of carbon captured by the crude oil producer or transporter to a third party to store the carbon, both the crude producer or transporter and the third party must apply and will be considered joint applicants for approval of the innovative method.

(D) A crude oil producer or transporter must register under section 95483.1 as an opt-in project operator to receive credits for an approved innovative method. The crude oil producer or transporter, through a written agreement, may elect to transfer the right to opt in for credit generation to the joint applicant. If neither the crude oil producer or transporter nor the joint applicant using an approved innovative method registers as an opt-in project operator, credits generated by the producer's or transporter's use of the innovative method may be claimed by California refinery(ies) that purchase the crude produced or transported using the innovative method if CARB receives all information it needs to ensure compliance with limitations and reporting requirements applied to the method.

(E) The innovative method must achieve one of the following threshold criteria:

1. A carbon intensity reduction from the comparison baseline of at least 0.10 gCO_2e/MJ, or
2. An emissions reduction of at least 5,000 metric tons CO_2e per year.

If the innovative method involves more than one crude producer or transporter using steam, heat, or electricity produced at a single third-party facility, the threshold criteria listed above may apply to the aggregated project total.

(F) Credits for producing crude oil with innovative methods must be calculated as specified below:

For crude oil produced using solar steam generation:

$$Credits_{Innov}(MT) = Avoided\ emissions \times \frac{V_{steam} \times f_{solar}}{V_{crudeproduced}} \times V_{Innov} \times C$$

Where avoided emissions, as calculated using the OPGEE model assuming displacement of steam produced using a natural gas fired once through steam generator, are correlated with the steam quality as tabulated below:

Steam quality	Avoided emissions (gCO_2e/bbl solar steam)
95% and above	34,875
85% to <95%	30,443
75% to <85%	28,188
65% to <75%	25,932
55% to <65%	23,677
45% to <55%	21,421

For crude oil produced or transported using solar or wind based electricity:

$$Credits_{Innov}(MT) = 511 \times \frac{E_{electricity} \times f_{renew}}{V_{crudeproduced}} \times V_{Innov} \times C$$

For crude oil produced or transported using any other innovative method listed in section 95489(c)(1)(A):

$$Credits_{Innov}(MT) = \Delta CI_{Innov} \times E_{Innov} \times V_{Innov} \times C$$

where:

$Credits_{Innov}(MT)$ means the amount of LCFS credits generated (a positive value), in metric tons, by the volume of a crude oil produced or transported using the innovative method and delivered to California refineries for processing;

V_{steam} means the overall volume, in barrels cold water equivalent, of steam injected;

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

f_{solar} means the fraction of injected steam that is produced using solar;

$V_{crudeproduced}$ means the volume, in barrels, of crude oil produced or transported using the innovative method;

V_{Innov} means the volume, in barrels, of crude oil produced or transported using the innovative method and delivered to California refineries for processing. If the crude produced or transported using the innovative method and delivered to California refineries is part of a blend, then V_{Innov} is the volume of blend delivered to California refineries times the volume fraction of the crude within the blend that was produced or transported using the innovative method.

$$C = 1.0 \times 10^{-6} \frac{MT}{gCO_2e}$$

$E_{electricity}$ means the overall electricity consumption to produce or transport the crude, in kW-hr;

f_{renew} means the fraction of consumed electricity that is produced using qualifying solar or wind power;

ΔCI_{Innov} means the reduction in carbon intensity (a positive value), in gCO_2e/MJ_{crude}, associated with crude oil production or transport with the innovative method as compared to crude oil production or transport by a baseline process without the method (hereafter referred to as the comparison baseline method); and

E_{Innov} means the energy density (lower heating value), in MJ/barrel, for the crude oil produced or transported with the innovative method.

(G) Renewable or low-CI energy sources listed in (A) that are used to generate LCFS credit for innovative crude may not also claim renewable energy certificates or other environmental attributes recognized or credited by any other jurisdiction or regulatory program, other than the market-based compliance mechanism set forth in title 17, California Code of Regulations Chapter 1, Subchapter 10, article 5 (commencing with section 95800).

(2) *Application and Data Submittal*. Unless otherwise noted, an application for an innovative method shall comply with the requirements below:

(A) An applicant that submits any information or documentation in support of a proposed innovative method must include with the application a written statement clearly showing that the applicant understands and agrees to the following:

1. That all information in the application not identified as confidential business information is subject to public disclosure pursuant to California Code of Regulations, title 17, sections 91000 through 91022 and the California Public Records Act (Government Code §§ 6250 et seq.), and that information claimed by the applicant to be confidential might later be disclosed under section 91022 if the state board determines the information is subject to disclosure.

2. That the crude oil producer or transporter or third-party joint applicant must register under section 95483.1 as an opt-in project operator to receive LCFS credit for an innovative method, and that if the crude oil producer or transporter or third-party joint applicant does not register as an opt-in project operator, credits from an approved innovative method may be claimed by California refinery(ies) that purchase crude produced from the innovative method.

(B) An application must contain the following summary material:

1. A complete description of the innovative method and how emissions are reduced;
2. An engineering drawing(s) or process flow diagram(s) that illustrates the innovative method and clearly identifies the system boundaries, relevant process equipment, mass flows, and energy flows necessary to calculate the innovative method credits;
3. A map including global positioning system coordinates for the facilities described in section 95489(c)(2)(B)2.; and
4. A preliminary estimate of the potential innovative method credit, calculated as required in section 95489(c)(1)(F), including descriptions and copies of production and operational data or other technical documentation utilized in support of the calculation.

(C) An application, except for solar-generated steam for crude oil production (45 percent steam quality or greater), wind-based electricity, or solar-based electricity, shall include a detailed description of the innovative method and its comparison baseline method. The description of innovative and comparison baseline methods can be limited to those portions of the crude production or

transport process affected by the innovative method. The description of the innovative method and its comparison baseline method must include each of the following, to the extent each is applicable to the innovative method:

1. Schematic flow charts that identify the system boundaries used for the purposes of performing the life cycle analyses on the proposed innovative method and the comparison baseline method. Each piece of equipment or stream appearing on the process flow diagrams shall be clearly identified and shall include data on its energy and materials balance. The system boundary shall be clearly shown in the schematic.

2. A description of all material and energy inputs entering the system boundaries, including their points of origination, modes of transportation, transportation distances, means of storage, and all processing to which material inputs are subject.

3. A description of all material and energy products, co-products, byproducts, and waste products leaving the system boundaries, including their respective destinations, transportation modes, and transportation distances.

4. A description of all facilities within the system boundaries involved in the production or transport of the crude oil and other byproducts, co-products, and waste products.

5. A description of all combustion and electricity-powered equipment within the system boundaries, including their respective capacities, sizes, or rated power, fuel utilization type, fuel shares, energy efficiency (lower heating value basis), and proposed use.

6. A description of the thermal and electrical energy production that occurs within the system boundaries, including the respective capacities, sizes, or rated power, fuel utilization type, fuel shares, energy efficiency (lower heating value basis), and proposed use.

7. A description of all sources of flared, vented, and fugitive emissions within the system boundaries, including the compositions of the flared, vented, and fugitive emission streams leaving the system boundaries.

(D) An application, except for solar-generated steam for crude oil production (45 percent steam quality or greater), wind-based electricity, or solar-based electricity shall include descriptions of the life cycle assessments (LCAs) performed on the proposed innovative method and its comparison baseline method using the CARB OPGEE model or an alternative model or LCA methodology approved by the Executive Officer. Electronic copies of the models and calculations shall be provided with the application. The descriptions of the life cycle assessment results must include each of the following:

1. Detailed information on the energy consumed, the greenhouse gas emissions generated for the innovative method and the comparison baseline method;

2. Documentation of all non-default model input values used in the emissions calculation process. If values for any significant production parameters are unknown, the application shall so state and model default values shall be used for these parameters in the analysis;

3. Detailed description of all supporting calculations that were performed outside of the model; and

4. Documentation of all modifications other than those covered by subsection 2., above, made to the model. This discussion shall include sufficient specific detail to enable the Executive Officer to replicate all such modifications and, in combination with the inputs and supporting calculations identified in subsections 2. and 3., above, replicate the carbon intensity results reported in the application.

(E) An application shall include a list of references covering all information sources used in the preparation of the life cycle analysis and calculation of innovative method credit. The reference list must meet the requirements of section 95488.7(a)(2)(D).

(F) An application shall include a signed transmittal letter from the applicant attesting to the veracity of the information in the application packet and declaring that the information submitted accurately represents the actual and/or intended long-term, steady-state operation of the innovative method described in the application packet. The transmittal letter must meet the requirements of section 95488.8(a)(3)(A) through (D).

(G) CBI must be designated and a redacted version of any submitted documents designated to include CBI must be provided pursuant to the requirements described in section 95488.8(c).

(H) An application, supporting documents, and all other relevant data or calculation or other documentation must be submitted electronically via the AFP unless the Executive Officer has approved or requested another format.

(3) *Application Approval Process.* The application must be approved by the Executive Officer before the crude oil producer or transporter, joint applicant, or purchasing refinery may generate credit for the innovative method.

(A) Within 30 calendar days of receipt of an application designated by the applicant as ready for formal evaluation, the Executive Officer shall advise the applicant in writing either that:

1. The application is complete, or

2. The application is incomplete, in which case the Executive Officer will identify which requirements of section 95489(c) have not been met.

a. The applicant may submit additional information to correct deficiencies identified by the Executive Officer.

b. If the applicant is unable to achieve a complete application within 180 days of the Executive Officer's receipt of the original application, the application will be denied on that basis, and the applicant will be informed in writing.

(B) After accepting an application as complete, the Executive Officer will post the application at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm. Public comments will be accepted for 10 days following the date on which the application was posted. Only comments related to potential factual or methodological errors may be considered. The Executive Officer will forward to the applicant all comments identifying potential factual or methodological errors. Within 30 days, the applicant shall either submit revisions to its application to the Executive Officer, or submit a detailed written response to the Executive Officer explaining why no revisions are necessary.

(C) The Executive Officer shall not approve an application if the Executive Officer determines, based upon the information

submitted in the application and any other available information, that:

1. The proposed crude production or transport method is not an innovative method, as that term is defined in section 95489(c)(1).

2. Based upon the application information submitted pursuant to this section, the applicant's greenhouse gas emissions calculations cannot be replicated using the CARB OPGEE model or alternative model or LCA methodology approved by the Executive Officer.

(D) As part of any action approving an application, the Executive Officer may prescribe conditions of the approval that contain special limitations, recordkeeping and reporting requirements, and operational conditions that the Executive Officer determines should apply to the innovative method. If the Executive Officer determines the application will not be approved, and the applicant will be notified in writing and the basis for the disapproval shall be identified.

(4) *Recordkeeping and Reporting.* Each applicant that receives approval for an innovative method must maintain records identifying each facility at which it produces crude oil for sale in California under the approved innovative method. For each such facility, the applicant must report quarterly (through a Project Report) and maintain records for at least ten years showing:

(A) The volume (barrels) of crude oil produced or transported using the approved innovative method and the crude name(s) under which it is marketed.

(B) If the crude oil produced or transported with an approved innovative method is marketed as part of a crude blend that is not wholly refined in California, the name of the blend and the volume fraction that the crude produced with the innovative method contributes to the blend.

(C) For crude oil imported into California, documentation showing that the innovative crude was supplied to one or more California refinery and the volume (barrels) of innovative crude supplied to each California refinery. For crude oil produced in California, documentation showing the innovative crude was supplied to one or more California refinery, the total volume (barrels) of innovative

crude supplied to California refineries, and the total volume (barrels) of innovative crude exported from California.

(D) For solar or wind electricity projects, the following additional recordkeeping and reporting will be required:

1. Metered data on solar or wind electricity consumed at the crude oil production or transport facilities during the quarter (kWh);

2. Metered data on total electricity consumed at the crude oil production or transport facilities during the quarter (kWh); and

3. An attestation letter stating that all solar or wind electricity was supplied directly for crude oil production or transport and that the solar or wind electricity reported for generating LCFS credit did not produce renewable energy certificates or other environmental attributes recognized or credited by any other jurisdiction or regulatory program, other than the market-based compliance mechanism set forth in title 17, California Code of Regulations Chapter 1, Subchapter 10, article 5 (commencing with section 95800).

(E) For solar steam projects at crude oil production facilities, the following additional recordkeeping and reporting will be required:

1. Metered data on solar steam consumed for crude oil production at the oil field during the quarter (barrels cold water equivalent);

2. Metered data on total steam consumed for crude oil production at the oil field during the quarter (barrels cold water equivalent);

3. Volume-weighted average steam quality for solar steam consumed for crude oil production at the oil field during the quarter; and

4. An attestation letter stating that all solar steam was supplied directly for crude oil production at the oil field and that the solar steam reported for generating LCFS credit did not produce renewable energy certificates or other environmental attributes recognized or credited by any other jurisdiction or regulatory program, other than the market-based compliance mechanism set forth in title 17, California

Code of Regulations Chapter 1, Subchapter 10, article 5 (commencing with section 95800).

(F) Any additional records that the Executive Officer requires to be kept in pursuant to section 95489(c)(3)(D), and records that demonstrate compliance with all special limitations and operating conditions specified pursuant to section 95489(c)(3)(D).

These records shall be submitted to the Executive Officer during the quarterly reporting period specified in section 95491(b).

(5) *Credits for Producing or Transporting Crude Oil Using Innovative Methods*. Credits for producing or transporting crude oil using innovative methods may be generated quarterly or annually, at the discretion of the credit generating party. Within 30 days of receiving reports from California refineries detailing crude names and volumes supplied to the refineries during the applicable crediting period, any records requested of the applicant under section 95489(c)(4), and a positive or qualified positive verification of the applicable Project Reports per section 95500, the Executive Officer will determine the number of credits to be issued to the crude oil producer or transporter, joint applicant, or purchasing refinery for the innovative method. An adverse verification statement would result in no credit issuance and Executive Officer investigation.

(d) *Low-Complexity/Low-Energy-Use Refinery Credit.* A refinery may receive credit for being a low-complexity and low-energy-use refinery.

(1) To be eligible for the credit calculation in section 95489(d)(3), a Low-Complexity/Low-Energy-Use Refinery must meet the criteria in the definition of "Low-Complexity/Low-Energy-Use Refinery" provided in section 95481(a) using the following equations:

(A) Modified Nelson Complexity Score

$$Modified\ Nelson\ Complexity\ Score = \sum_{i}^{n} (index_i) \left(\frac{Capacity_i}{Capacity_{dist}} \right)$$

where:

$index_i$ is the 2012 Nelson Complexity Index listed in Table 10;

$Capacity_i$ is the capacity of each unit listed in Table 10 in barrels per day unless otherwise indicated;

$Capacity_{dist}$ is the capacity of the distillation unit in barrels per day;

i is the process unit; and

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

n is the total number of process units.

Table 10. Nelson Complexity Indices.

Process Unit	***Index Value***
Atmospheric Distillation	1.00
Vacuum Distillation	1.30
Thermal Processes	2.75
Delayed and Fluid Coking	7.50
Catalytic Cracking	6.00
Catalytic Reforming	5.00
Catalytic Hydrocracking	8.00
Catalytic Hydrorefining/Hydrotreating	2.50
Alkylation	10.00
Polymerization	10.00
Aromatics	20.00
Isomerization	3.00
Oxygenates	10.00
Hydrogen (MMcfd)	1.00
Sulfur Extraction (Metric Tons per day)	240.00

(B) Annual Energy Use

$$Annual\ Energy\ Use\ (in\ MMBtu) = fuel\ use + electricity + thermal$$

where:

$fuel\ use$ is the MMBtu of all fuel combusted during the compliance period;

$electricity$ is the imported electricity minus exported electricity per compliance period converted to MMBtu by using 3.142 MMBtu/MWh; and

$thermal$ is the imported thermal energy minus exported thermal energy per compliance period in MMBtu.

(2) In addition to other reporting requirements, a refinery operator that is claiming credits for a Low-Complexity/Low-Energy-Use Refinery must also report the following volumes produced during a specific calendar year and sold, supplied, or offered for sale in California for that refinery:

(A) The volume of CARBOB and volume of diesel produced from crude oil;

(B) The volume of CARBOB and volume of diesel produced from transmix;

(C) The volume of CARBOB and volume of diesel produced from Petroleum Intermediate feedstocks; and

(D) The volume of CARBOB and volume of diesel purchased for blending.

(E) If CARBOB or diesel is produced from feedstock other than crude oil (volumes in (2)(B) through (D), above), a separate annual report with third-party verification is required for produced volumes of CARBOB and diesel from crude oil. The annual report must be submitted by March 31st and the verification statement is due August 31st.

(3) Credits for a low-complexity/low-energy-use refinery must be calculated using the following equations:

(A) *Carbon Intensity Adjustment.* For volumes reported in section 95489(d)(2)(A) a non-transferable credit of 5.0 gCO_2e/MJ will be generated.

(B) *Credit Calculation*. For CARBOB and diesel volumes reported in section 95489(d)(2)(A):

$$Credits_{LC-LE}^{XD} = 5\ gCO2e/MJ \times VF^{XD} \times E^{XD} \times C$$

where:

$Credits_{LC-LE}^{XD}$ is the amount of LCFS credits generated (a zero or positive value), in metric tons, by a fuel or blendstock under the average carbon intensity requirement for gasoline (XD = "gasoline") or diesel (XD = "diesel");

VF^{XD} means the volume fraction of CARBOB (XD = "CARBOB") or diesel (XD = "diesel") fuel that is derived from crude oil supplied to the Low-Complexity/Low-Energy-Use refinery. VF^{XD} is calculated by dividing the volume of CARBOB or diesel reported for section 95489(d)(2)(A) by the total volume of CARBOB or diesel reported for section 95489(d)(2)(A) through (D);

E^{XD} is the amount of fuel energy, in MJ, from CARBOB (XD = "CARBOB") or diesel (XD = "diesel"), determined from the energy density conversion factors in Table 4, either produced in California or imported into California during a specific calendar year and sold, supplied, or offered for sale in California; and

$$C = 1.0 \times 10^{-6} \frac{MT}{gCO_2e}$$

(C) Credits created pursuant to section 95489(d) may not be sold or transferred to any other party.

(4) *Application Contents and Submittal*. An application for Low-Complexity/Low-Energy-Use Refinery Credits must comply with the following requirements:

(A) An application must contain the following summary material:

1. A complete description of the refinery including processing units and their capacity, and energy use;

2. An engineering drawing(s) or process flow diagram(s) that illustrates the project, relevant process equipment, and mass or volumetric flows necessary to calculate the Low-Complexity/Low-Energy-Use Refinery Credits; and

3. A preliminary estimate of the credit, calculated as required in section 95489(d)(3)(B), including descriptions and copies of production and operational data other technical documentation utilized in support of the calculation.

(B) An application must include a list of references covering all information sources used in the calculation of Low-Complexity/Low-

Energy-Use Refinery Credits. The reference list must meet the requirements of section 95488.7(a)(2)(D).

(C) An application must include a signed transmittal letter from the applicant attesting to the veracity of the information in the application packet and declaring that the information submitted accurately represents the actual operation of the refinery. The transmittal letter must meet the requirements of section 95488.8(a)(3)(A) through (D).

(D) An applicant that submits any information or documentation in support of a proposed Low-Complexity/Low-Energy-Use Refinery Credit must include a written statement clearly showing that the applicant understands and agrees that all information in the application not identified as confidential business information is subject to public disclosure pursuant to California Code of Regulations, title 17, sections 91000 through 91022 and the California Public Records Act (Government Code, §§. 6250 et seq.), and that information claimed by the applicant to be confidential might later be disclosed under section 91022 if the Board determines the information is subject to disclosure.

(E) An application, supporting documents, and all other relevant data or calculation or other documentation must be submitted electronically via the AFP unless the Executive Officer has approved or requested another format.

(F) If there is a change to an approved Low-Complexity/Low-Energy-Use Refinery which could impact the eligibility of the refinery, the refinery operator must notify the Executive Officer in writing within 30 business days after the material change has occurred, and the previously-approved application shall become invalid 30 business days after the material change has occurred.

(5) *Credit Issuance.* The Executive Officer will issue Low-Complexity/Low-Energy-Use Refinery Credits annually for the prior year upon the completion of the following:

(A) Confirmation of eligibility by the Executive Officer based on the refinery energy use verified under MRR annually.

(B) Receipt of a positive or qualified positive verification statement for the quarterly fuel transactions reported pursuant to section 95489(d)(2). An adverse verification statement would result in no credit issuance and Executive Officer investigation.

(e) *Refinery Investment Credit Program*. A refinery may receive credit for reducing greenhouse gas emissions from its facility. Any such credits must be based on fuel volumes sold, supplied, or offered for sale in California as set forth below.

(1) *General Requirements*.

(A) The application for a refinery investment credit must be submitted during or after the year 2016 and must be approved pursuant to this section before the refinery can receive credit. A project is eligible if the project completion date is on January 1, 2016 or later.

(B) The refinery investment credit project must occur within the boundaries of the refinery, unless it involves carbon capture from hydrogen production. Sequestration sites for CCS do not need to be on-site at the refinery.

(C) The applicant must demonstrate that any net increases in criteria air pollutant or toxic air contaminant emissions from the refinery investment credit project are mitigated in accordance with all local, state, and national environmental and health and safety regulations.

(D) The following project types are eligible for the refinery investment project credits:

1. CO_2 capture at refineries, or at hydrogen production facilities that supply hydrogen to refineries, and subsequent geologic sequestration;

2. Use of renewable or low-CI electricity supplied behind the meter that meets the requirements of 95488.8(h)(1);

3. Use of lower-CI process energy such as biomethane, renewable propane, and renewable coke, to displace fossil fuel;

4. Electrification at refineries that involves substitution of high carbon fossil energy input with grid electricity.

5. Process improvement projects that deliver a reduction in baseline refinery-wide greenhouse gas emissions as outlined in 95489(e)(1)(G)2. Greenhouse gas emissions reductions due to curtailment, simple maintenance; and crude oil switching that results in greenhouse gas reductions in the project system boundary without improvements in the processing units or equipment involved are not eligible. For

the purposes of this section, curtailment is defined as an intentional operational and/or physical change exclusively for the reduction or cessation of total gasoline and gasoline blendstocks and diesel production at the refinery. Curtailment does not include the coincidental rate reduction or shutdown of associated emitting equipment as part of a process improvement project or projects aimed primarily at optimizing refinery efficiency.

(E) Credits must be pro-rated for years where the units within the project system boundary were non-operational. This pro-rating will consider the calendar days of operation relative to non-operation.

(F) Credits must be pro-rated if the hydrogen production facility that captures CO_2 does not supply all of its hydrogen to the applicant refinery.

(G) Credits generated pursuant to section 95489(e)(1)(D)5. are subject to the following limitations:

1. Credits may not be used to meet more than 10 percent of any entity's annual compliance obligation. The Executive Officer will exclude incremental deficits incurred pursuant to section 95489(b) when assessing this 10 percent limitation.

2. Each project must generate at least 10,000 credits or one percent of the facility's annual pre-project emissions, whichever is less.

3. Crediting is limited to 15 years from the quarter in which the Executive Officer approves the project's application.

(H) Projects that utilize carbon capture and sequestration are subject to the provisions of section 95490.

(2) *Calculation of Credits.*

(A) For carbon capture and sequestration projects, determine the credit in accordance with the CCS protocol.

(B) For other refinery investment credit projects, determine the credit as follows:

1. Establish a project system boundary. The project system boundary should include direct impacts and at least first order indirect impacts;

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

2. Determine the credit for the refinery investment credit project by calculating pre-project life cycle greenhouse gas emissions and project life cycle greenhouse gas emissions within the project system boundary;

$$Credit_{RIP} = (GHG_{pre-project} - GHG_{post-project}) \times \frac{Volume^{XD}}{Volume^{Total}}$$

where:

$Credit_{RIP}$ is the annual credit for the refinery investment credit project in metric tons per year;

$GHG_{pre-project}$ is the annual life cycle greenhouse gas emissions from the use of fuels, electricity, steam/heat and hydrogen in the project system boundary prior to project implementation in metric tons per year corrected for downtime;

$GHG_{post-project}$ is the annual life cycle greenhouse gas emissions from the use of fuels, electricity, steam/heat and hydrogen in the project system boundary due to project implementation in metric tons per year corrected for downtime;

$Volume^{XD}$ is the volume of gasoline, gasoline blendstocks, and diesel in gallons per quarter or per year produced at the refinery and sold, supplied, or offered for sale in California by the refinery involved in the *Refinery Investment Credit Program*; and

$Volume^{Total}$ is the total volume of gasoline, gasoline blendstocks, and diesel in gallons produced at the refinery per quarter or per year.

(3) *Application Contents and Submittal*. Unless otherwise noted, an application for refinery investment credits must comply with the following requirements:

(A) An application must contain the following summary material:

1. A complete description of the refinery investment credit project and how emissions are reduced;

2. An engineering drawing(s) or process flow diagram(s) that illustrates the project and clearly identifies the system boundaries, relevant process equipment, mass flows, and energy flows necessary to calculate the refinery investment credits, including any directly affected or indirectly affected processing units (at least first order indirect impacts) and a whole refinery diagram if requested; and

3. A preliminary estimate of the refinery investment credit, calculated as required in section 95489(e)(2), including descriptions and copies of any available production and operational data including energy use and other technical documentation utilized in support of the calculation. The application must contain process-specific data showing that the reductions are part of the transportation fuel pathway.

4. Supporting documents demonstrating that second or higher order indirect impacts are not significant beyond the identified project system boundary.

(B) An application must include a list of references covering all information sources used in the calculation of refinery investment credit. The reference list must meet the requirements of section 95488.7(a)(2)(D).

(C) An application must include a signed transmittal letter from the applicant attesting to the veracity of the information in the application packet and declaring that the information submitted accurately represents the actual and/or intended long-term, steady-state operation of the refinery investment credit project described in the application packet. The transmittal letter must meet the requirements of section 95488.8(a)(3)(A) through (D).

(D) CBI must be designated and a redacted version of any submitted documents designated to include CBI must be provided pursuant to the requirements described in section 95488.8(c).

(E) An application must include all relevant documentation identifying any changes, including decreases or increases, in criteria air pollutant or toxic air contaminant emissions based on local air permits and supporting permit documentation from the refinery investment credit project. An applicant must include a signed transmittal letter from the applicant attesting that any net increases in emissions from the refinery investment credit project are

mitigated in accordance with all local, state, and national environmental and health and safety regulations.

(F) An applicant that submits any information or documentation in support of a proposed refinery investment credit must include a written statement clearly showing that the applicant understands and agrees that all information in the application not identified as confidential business information is subject to public disclosure pursuant to California Code of Regulations, title 17, sections 91000 through 91022 and the California Public Records Act (Government Code, §§. 6250 et seq.), and that information claimed by the applicant to be confidential might later be disclosed under section 91022 if the Board determines the information is subject to disclosure.

(G) An application, supporting documents, and all other relevant data or calculation or other documentation must be submitted electronically via the AFP unless the Executive Officer has approved or requested another format.

(H) Applications for process improvement projects must be submitted on or before December 31, 2025.

(4) *Application Approval Process*. An application must be approved by the Executive Officer before the refinery investment credit project can generate credits under the LCFS regulation.

(A) After receipt of an application designated by the applicant as ready for formal evaluation, the Executive Officer will advise the applicant in writing either that:

1. The project system boundary is appropriate and the application is complete, or
2. The application is incomplete, in which case the Executive Officer will identify which requirements of section 95489(e) have not been met. The applicant may submit additional information to correct deficiencies identified by the Executive Officer. If the applicant is unable to achieve a complete application within 180 calendar days of the Executive Officer's receipt of the original application, the application will be denied on that basis, and the applicant will be informed in writing.

(B) After accepting an application as complete, the Executive Officer will post the application at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm. Public comments will be accepted for 10 calendar days following

the date on which the application was posted. Only comments related to potential factual or methodological errors may be considered. The Executive Officer will forward to the applicant all comments identifying potential factual or methodological errors. Within 30 business days, the applicant must either submit revisions to its application to the Executive Officer, or submit a detailed written response to the Executive Officer explaining why no revisions are necessary.

(C) If the Executive Officer finds that an application meets the requirements set forth in section 95489(e), the Executive Officer will take final action to approve the refinery investment credit project. The Executive Officer may prescribe conditions of approval that contain special limitations, recordkeeping and reporting requirements, and operational conditions that the Executive Officer determines should apply to the project. If the Executive Officer finds that an application does not meet the requirements of section 95489(e), the application will not be approved, and the applicant will be notified in writing, and the basis for the disapproval will be identified.

(5) *Credit Review and Issuance*. Credits for refinery investment projects may be generated quarterly or annually, at the discretion of the credit generating party.

(A) Upon the completion of reporting period in which a positive or qualified positive verification statement for the applicable Project Reports per section 95500(e) is received, the Executive Officer will determine the number of credits to be issued to the applicants. An adverse verification statement would result in no credit issuance and Executive Officer investigation.

(6) *Recordkeeping*. For each approved refinery investment credit project the refinery must compile and retain records pursuant to section 95491.1(a)(2) showing compliance with all limitation and recordkeeping requirements identified by the Executive Officer pursuant to section 95489(e)(4)(C), above.

(f) *Renewable Hydrogen Refinery Credit Program.* A refinery may receive credit for greenhouse gas emission reductions from the production of CARBOB or diesel fuel that is partially or wholly derived from renewable hydrogen. Any such credits must be based on fuel volumes sold, supplied, or offered for sale in California as set forth below.

(1) *General Requirements*.

(A) In order to receive a renewable hydrogen refinery credit, a refiner must produce CARBOB or diesel fuel that is partially or wholly derived from renewable hydrogen.

(B) The applicant must demonstrate that any net increases in criteria air pollutant or toxic air contaminant emissions from the renewable hydrogen refinery credit project are mitigated in accordance with all local, state, and national environmental and health and safety regulations.

(2) *Calculation of Credits.*

(A) For CARBOB or diesel fuel that is partially or wholly derived from renewable hydrogen produced from RNG that displaces fossil natural gas in a steam methane reforming unit, the calculation of credits generated quarterly or annually must be as follows:

$$Credits_{RIC}^{H} = (CI_{NG} - CI_{RNG}) \times E_{RNG} \times C \times \frac{Volume^{XD}}{Volume^{Total}}$$

where:

$Credits_{RIC}^{H}$ is the amount of LCFS credits generated (a zero or positive value), in metric tons, by renewable hydrogen;

CI_{NG} is the well-to-hydrogen production carbon intensity of North American pipeline natural gas in gCO_2e/MJ calculated using the same feedstock assumptions and pipeline distance as the Lookup Table pathway for Pipeline Average North American Fossil Natural Gas (CNGF);

CI_{RNG} is the well-to-hydrogen production carbon intensity of the RNG in gCO_2e/MJ and must be determined using the CA-GREET 3.0 model unless the Executive Officer has approved the use of a method that is at least equivalent to the calculation methodology used by CA-GREET3.0 model. The process for obtaining CI_{RNG} will be identical to Tier 2 fuel pathway applications, and the life cycle steps evaluated will stop at hydrogen production at the refinery;

E_{RNG} is the amount of RNG in MJ delivered to a refinery per quarter or per year;

$Volume^{XD}$ is the volume of gasoline, gasoline blendstocks, and diesel in gallons per quarter or per year produced at the refinery and sold, supplied, or offered for sale in California by the refinery;

$Volume^{Total}$ is the total volume of gasoline, gasoline blendstocks, and diesel in gallons produced at the refinery per quarter or per year; and

$$C = 1.0 \times 10^{-6} \frac{MT}{gCO2e}$$

(B) For CARBOB or diesel fuel that is partially or wholly derived from renewable hydrogen produced from other production processes, such as electrolysis using renewable electricity or syngas from biomass gasification, the calculation of credits generated quarterly or annually must be as follows:

$$Credits_{RIC}^{H} = (CI_{Fossil}^{H} - CI_{Renewable}^{H}) \times D_{Renewable}^{H} \times M_{Renewable}^{H} \times C \times \frac{Volume^{XD}}{Volume^{Total}}$$

where:

$Credits_{RIC}^{H}$ is the amount of LCFS credits generated (a zero or positive value), in metric tons, by renewable hydrogen;

CI_{Fossil}^{H} is the carbon intensity of fossil hydrogen in gCO_2e/MJ delivered or produced at the refinery, as determined using the CA-GREET3.0 model or similar models approved by the Executive Officer. The process for obtaining CI_{Fossil}^{H} must comply with the requirements in sections 95488 to 95488.10;

$CI_{Renewable}^{H}$ is the carbon intensity of renewable hydrogen in gCO_2e/MJ delivered or produced at the refinery, as determined using the CA-GREET3.0 model. The process for obtaining $CI_{Renewable}^{H}$ must comply with the requirements in sections 95488 to 95488.10;

$M_{Renewable}^{H}$ is the amount of renewable hydrogen in kg per quarter or per year;

$D_{Renewable}^{H}$ is the energy density of hydrogen in MJ/kg from Table 4;

$Volume^{XD}$ is the volume of gasoline, gasoline blendstocks, and diesel in gallons per quarter or per year sold, supplied, or offered for sale in California by the refinery involved in the *Renewable Hydrogen Refinery Credit Program*;

$Volume^{Total}$ is the total volume of gasoline, gasoline blendstocks, and diesel in gallons produced at the refinery per quarter or per year; and

$$C = 1.0 \times 10^{-6} \frac{MT}{gCO2e}$$

(3) *Application Contents and Submittal*. Unless otherwise noted, an application for renewable hydrogen credits must comply with the following requirements:

(A) An application must contain the following summary material:

1. A complete description of the production of CARBOB or diesel fuel with hydrogen and how renewable hydrogen is replacing fossil hydrogen in that process;

2. Purchase records identifying the renewable hydrogen and/or renewable feedstock used to produce the renewable hydrogen; and

3. A preliminary estimate of the renewable hydrogen refinery credit, calculated as required in section 95489(f)(2), including descriptions and copies of production and operational data, including energy use, and other technical documentation utilized in support of the calculation. The application must contain process-specific data showing that the reductions are part of the transportation fuel pathway.

(B) An application must include a list of references covering all information sources used in the calculation of renewable hydrogen refinery credit project. The reference list must meet the requirements of section 95488.7(a)(2)(D).

(C) An application must include a signed transmittal letter from the applicant attesting under penalty of perjury under California law, to the veracity of the information in the application packet and declaring that the information submitted accurately represents the actual and/or intended long-term, steady-state operation of renewable hydrogen refinery credit project described in the application packet. The transmittal letter must meet the requirements of section 95488.8(a)(3)(A) through (D).

(D) CBI must be designated and a redacted version of any submitted documents designated to include CBI must be provided pursuant to the requirements described in section 95488.8(c).

(E) An application must include all relevant documentation identifying any changes, including decreases or increases, in criteria air pollutant or toxic air contaminant emissions based on local air permits from the renewable hydrogen refinery credit project. An applicant must include a signed transmittal letter from the applicant attesting that any net increases in emissions from renewable hydrogen refinery credit project are mitigated in accordance with all local, state, and national environmental and health and safety regulations.

(F) An application, supporting documents, and all other relevant data or calculation or other documentation must be submitted electronically via the AFP unless the Executive Officer has approved or requested another format.

(4) *Application Approval Process*. An application must be approved by the Executive Officer before the renewable hydrogen refinery credit project can generate credits under the LCFS regulation.

(A) Within 30 calendar days of receipt of an application designated by the applicant as ready for formal evaluation, the Executive Officer will advise the applicant in writing either that:

1. The application is complete, or
2. The application is incomplete, in which case the Executive Officer will identify which requirements of section 95489(f) have not been met. The applicant may submit additional information to correct deficiencies identified by the Executive Officer. If the applicant is unable to achieve a complete application within 180 days of the Executive Officer's receipt of the original application, the application will be denied on that basis, and the applicant will be informed in writing.

(B) If the Executive Officer finds that an application meets the requirements set forth in section 95489(f), the Executive Officer will take final action to approve the renewable hydrogen refinery credit project. The Executive Officer may prescribe conditions of approval that contain special limitations, recordkeeping and reporting requirements, and operational conditions that the Executive Officer determines should apply to the project. If the Executive Officer finds that an application does not meet the requirements of section 95489(f), the application will not be approved, and the applicant will be notified in writing, and the basis for the disapproval will be identified.

(5) *Credit Review and Issuance*. Credits for renewable hydrogen refinery projects may be generated quarterly or annually, at the discretion of the credit generating party.

(A) Upon the completion of reporting period in which a positive or qualified positive verification statement for the applicable Project Reports per section 95500(e) is received, the Executive Officer will determine the number of credits to be issued to the applicants. An adverse verification statement would result in no credit issuance and Executive Officer investigation.

(6) *Recordkeeping*. For each approved renewable hydrogen refinery credit project, the refinery must compile and retain records pursuant to section 95491.1(a)(2) showing compliance with all limitation and recordkeeping requirements identified by the Executive Officer pursuant to section 95489(f)(4)(B), above.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95490. Provisions for Fuels Produced Using Carbon Capture and Sequestration.

(a) *Eligibility.* The following entities are eligible to submit project applications and, if approved, receive CCS credits, in accordance with following protocol which is incorporated herein by reference and is referred to as the "CCS Protocol" hereafter.

Industrial Strategies Division, California Air Resources Board. August 13, 2018. Carbon Capture and Sequestration Protocol under the Low Carbon Fuel Standard.

(1) Alternative fuel producers, refineries, and oil and gas producers that capture CO_2 on-site and geologically sequester CO_2 either on-site or off-site.

(2) An entity that employs direct air capture to remove CO_2 from the atmosphere and geologically sequester the CO_2. If CO_2 derived from direct air capture is converted to fuels, it is not eligible for project-based CCS credits. However, applicants may apply for fuel pathway certification using the Tier 2 pathway application process as described in section 95488.7.

(b) *General Requirements.*

(1) Projects and fuel pathways claiming CCS credits must comply with the CCS Protocol. To be considered in compliance with the CCS protocol, a project must be issued executive orders and meet all the requirements throughout the project life in accordance with the permanence requirements of the CCS protocol.

(2) Credit determination for any project that utilizes CCS must be performed in accordance with the accounting requirements of the CCS protocol.

(3) Except for direct air capture and sequestration projects, credits must be prorated based on the volumes delivered to California.

(4) CCS credits generated by crude oil and gas producers must be claimed under the Innovative Crude Provision (section 95489(c)).

(5) CCS credits generated by refiners must be claimed under the Refinery Investment Credit Program (section 95489(e)).

(6) The amount of net CO_2 sequestered by alternative fuel producers can be used to adjust the carbon intensities of the associated fuel pathways.

(7) Projects utilizing CCS must undergo verification under section 95500 in order to receive credits.

(c) *Application Contents and Submittal*. Unless otherwise noted, an application for CCS credits must comply with the following requirements:

(1) An application must be filed jointly by an entity that captures CO_2 and an entity that sequesters the resultant CO_2, unless the same entity is responsible for CO_2 capture and sequestration.

(2) An application must contain the following materials:

(A) A complete description of the CCS project and how greenhouse gas emissions are reduced;

(B) An engineering drawing(s) or process flow diagram(s) that illustrates the project and clearly identifies the system boundaries, relevant process equipment, mass flows, including the quantity of CO_2 injected into pipeline or delivered by other modes of transport for CO_2 injection, and energy flows necessary to calculate the CCS credit;

(C) A description of all combustion and electricity-powered equipment within the system boundaries, including their respective capacities, sizes, or rated power, fuel utilization type, fuel shares, energy efficiency (lower heating value basis), and proposed use;

(D) A description of all sources of flared, vented, and fugitive emissions within the system boundaries, including the compositions and quantities of the flared, vented, and fugitive emission streams leaving the system boundaries;

(E) Receipts/invoices for energy use and chemicals;

(F) An estimate of the CCS credit, calculated in accordance with the accounting requirements of the CCS Protocol including descriptions and copies of production and operational data or other technical; and documentation utilized in support of the calculation. The application must contain process-specific data showing that the reductions are part of the CCS project, and

(G) Executive orders issued pursuant to the permanence requirements of the CCS protocol, certifying the sequestration site as capable of permanently storing CO_2 and authorizing operation and credit generation.

(3) An application must include a list of references covering all information sources used in the calculation of the CCS credit. The reference list must meet the requirements of section 95489(c)(2)(E).

(4) An application must include a signed transmittal letter from the applicant attesting to the veracity of the information in the application packet and declaring that the information submitted accurately represents the actual CCS project greenhouse gas emissions reductions. The transmittal letter must be the original copy, be on company letterhead, be signed by an officer of the applicant with authority to attest to the veracity of the information in the application and to sign on behalf of the applicant.

(5) CBI must be designated and a redacted version of any submitted documents designated to include CBI must be provided pursuant to the requirements described in section 95488.8(c).

(6) An applicant that submits any information or documentation in support of a proposed CCS project must include a written statement clearly showing that the applicant understands and agrees that all information in the application not identified as confidential business information is subject to public disclosure pursuant to California Code of Regulations, title 17, sections 91000 through 91022 and the California Public Records Act

(Government Code, §§. 6250 et seq.), and that information claimed by the applicant to be confidential might later be disclosed under section 91022 if the Board determines the information is subject to disclosure.

(7) An application, supporting documents, and all other relevant data or calculation or other documentation must be submitted electronically via the AFP unless the Executive Officer has approved or requested another format.

(d) *Application Approval Process*. The Executive Officer must approve an application before the CCS project can generate credits under the LCFS regulation.

(1) After receipt of an application designated by the applicant as ready for formal evaluation, the Executive Officer will advise the applicant in writing either that:

(A) The application is complete, or

(B) The application is incomplete, in which case the Executive Officer will identify which requirements have not been met. The applicant may submit additional information within 30 days to correct deficiencies identified by the Executive Officer, otherwise, the application will be rejected.

(2) After accepting an application as complete, the Executive Officer will post the application on the LCFS web site. Public comments will be accepted for 10 calendar days following the date on which the application was posted. Only comments related to potential factual or methodological errors may be considered. The Executive Officer will forward to the applicant all comments identifying potential factual or methodological errors. Within 30 business days, the applicant must either submit revisions to its application to the Executive Officer, or submit a detailed written response to the Executive Officer explaining why no revisions are necessary.

(3) If the Executive Officer finds that an application meets the requirements set forth in section 95490(b), the Executive Officer will take final action to approve the CCS project. The Executive Officer may prescribe conditions of approval that contain special limitations, recordkeeping and reporting requirements, and operational conditions that the Executive Officer determines should apply to the project. If the Executive Officer finds that an application does not meet the requirements of section 95490(b), the application will not be approved, the applicant will be notified in writing, and the basis for the disapproval will be identified.

(e) *Reporting*. Each CCS project operator must submit to the Executive Officer the net amount of annual sequestered CO_2 and meet the reporting requirements in accordance with the CCS Protocol.

(f) *Credit Review and Issuance.* Credits for direct air capture projects may be generated quarterly or annually, at the discretion of the credit generating party.

(1) Upon the completion of reporting period in which a positive or qualified positive verification statement for the applicable Project Reports per section 95500(e) is received, the Executive Officer will determine the number of credits to be issued to the applicants. An adverse verification statement would result in no credit issuance and Executive Officer investigation.

(g) *Recordkeeping*. Pursuant to section 95491.1 and the CCS Protocol, each applicant that receives approval as a CCS credit generator must maintain records for the CCS project, including records necessary to verify permanent sequestration. At a minimum, the following records must be kept:

(1) The quarterly volume of alternative fuel, petroleum fuel, crude oil/natural gas produced and delivered to California;

(2) Energy use and chemical use data for the carbon capture facility and CO_2 injection facility;

(3) The Accounting Protocol and Permanence Protocol documents; and

(4) Any additional records that the Executive Officer requires to be kept in pursuant to section 95490(d)(3).

(h) *CO_2 Leakage and Credit Invalidation.*

(1) Credits for verified greenhouse gas emission reductions can be invalidated if the sequestered CO_2 associated with them is released or otherwise leaked to the atmosphere.

(2) The number of invalidated credits is equal to the quantity of CO_2 released or leaked from the sequestration zone ($CO_{2_{leakage}}$), which must be determined in accordance with the CCS Protocol.

(3) Prior to 50 years post-injection:

(A) The Executive Officer may retire credits from the buffer account, up to and including the project's total contribution, to count toward the number of invalidated credits.

(B) The project operator must retire credits for any balance after retiring credits pursuant to 95490(h)(3)(A).

(C) The Executive Officer may retire credits from the buffer account equivalent to remaining outstanding balance after retiring credits pursuant to 95490(h)(3)(A) and (B).

(4) After 50 years post-injection:

(A) The project operator is no longer responsible to make up any credits found to be invalid due to leakage.

(B) The Executive Officer may retire credits from the buffer account to cover any credits found to be invalid due to leakage.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95491. Fuel Transactions and Compliance Reporting.

A fuel reporting entity must submit to the Executive Officer Quarterly Fuel Transactions Reports and Annual Compliance Reports, as specified in this section.

(a) *Online Reporting.* The annual compliance and quarterly fuel transactions reports must be submitted using the LRT-CBTS. Prior to use, a fuel reporting entity must first register in the LRT-CBTS pursuant to section 95483.2.

The fuel reporting entity is solely responsible for ensuring that the Executive Officer receives its quarterly fuel transactions reports and annual compliance reports by the deadlines specified in this section. The Executive Officer shall not be responsible for failure of electronically submitted reports to be transmitted to the Executive Officer. The reports must contain a statement attesting to the report's accuracy and validity. The Executive Officer shall not deem an electronically submitted report to be valid unless the report is accompanied by a digital signature that meets the requirements of California Code of Regulations, title 2, sections 22000 et seq.

(b) *Reporting Frequency and Deadlines*.

(1) *Quarterly Fuel Transactions Data:* The data for the quarterly fuel transactions report for each fuel type must be uploaded in the LRT-CBTS within the first 45 days after the end of the quarter. During the subsequent

45 days, fuel reporting entities shall use the reconciliation tools provided in the LRT-CBTS and in conjunction with business partners to complete any necessary report corrections, if applicable.

(2) *Quarterly Fuel Transactions Reports.* Unless expressly provided elsewhere in this subarticle, quarterly fuel transactions reports must be submitted in LRT-CBTS by:

June 30th – for the first calendar quarter covering January through March;

September 30th – for the second calendar quarter covering April through June;

December 31st – for the third calendar quarter covering July through September; and

March 31st – for the fourth calendar quarter of the prior year covering October through December.

(3) *Annual Compliance Reports.* An annual compliance report for the prior calendar year must be submitted in LRT-CBTS by April 30th of each year.

(c) *General Reporting Requirements for Quarterly Fuel Transactions Reports*. For each of its transportation fuels, a fuel reporting entity must submit a quarterly fuel transactions report that contains the information specified below and summarized in Table 11:

(1) All applicable transaction types listed for each fuel type in 95491(d) below and defined in section 95481 must be included in each quarterly fuel transactions report.

(2) Information that must be reported are as follows: Organization FEIN, Reporting Period (year and quarter), FPC, Fuel Amount, Transaction Type, Transaction Date, Business Partner (if applicable), Aggregated Transaction Indicator, Fuel Application, Production Company ID and Facility ID (if applicable).

(d) *Specific Reporting Requirements for Quarterly Fuel Transactions Reports*. In addition to all requirements specified in section 95491(c), for each of its transportation fuels, a fuel reporting entity must submit a quarterly fuel transactions report that contains the information specified below and summarized in Table 11:

(1) *Specific Quarterly Reporting Parameters for Liquid Fuels including Gasoline, Diesel, Diesel Fuel Blends, Alternative Fuels, and Alternative Jet Fuel.*

(A) The applicable transaction types, defined in section 95481, are as follows: Production in California, Production for Import, Import, Purchased with Obligation, Purchased without Obligation, Sold with Obligation, Sold without Obligation, Export, Loss of Inventory, Gain of Inventory, and Not Used for Transportation. The transaction type "Production for Import" is to be reported by out-of-state producers who choose to be the first fuel reporting entity for fuel imported into California. The transaction type "Import" is to be reported by non-producers who choose to be the first fuel reporting entity for out-of-state fuel imported into California. The following information are to be reported:

1. Production Company ID and Facility ID for each blendstock. CARBOB and diesel fuel are exempt from this requirement.

2. The certified fuel pathway code (FPC) of each blendstock.

3. The volume (in gal) of each blendstock per reporting period. For purposes of this provision only, except as provided in subsection 4. below, the fuel reporting entity may report the total volume of each blendstock aggregated for each distinct carbon intensity value (e.g., X gallons of blendstock with A gCO_2e/MJ, Y gallons of blendstock with B gCO_2e/MJ).

4. A producer of CARBOB, gasoline, or diesel fuel must report, for each of its refineries, the MCON or other crude oil name designation, volume (in gal), and Country (or State) of origin for each crude supplied to the refinery during the quarter.

(B) *Temperature Correction*. All liquid fuel volumes reported in the LRT-CBTS must be adjusted to standard temperature conditions of 60°F as follows:

1. For ethanol, the following formula must be used:

$$V_{s,e} = V_{a,e} \times (-0.0006301 \times T + 1.0378)$$

where:

$V_{s,e}$ is the standardized volume of ethanol at 60°F, in gallons;

$V_{a,e}$ is the actual volume of ethanol, in gallons; and

T is the actual temperature of the batch, in °F.

2. For biodiesel, one of the following two methodologies must be used:

   a. $V_{s,b} = V_{a,b} \times (-0.00045767 \times T + 1.02746025)$

      where:

      $V_{s,b}$ is the standardized volume of biodiesel at 60°F, in gallons;

      $V_{a,b}$ is the actual volume of biodiesel, in gallons; and

      T is the actual temperature of the batch, in °F.

   b. The standardized volume of biodiesel at 60°F, in gallons, as calculated from the use of the American Petroleum Institute Refined Products Table 6B, as referenced in ASTM D1250-08 (Reapproved 2013), which is incorporated herein by reference, or by comparable means that can be demonstrated to a verifier or the Executive Officer to be consistent with these standard methods.

3. For other liquid fuels, the volume correction to standard conditions must be calculated by the methods described in the American Petroleum Institute (API) Manual of Petroleum Measurement Standards Chapter 11 – Physical Properties Data (May 2004), the ASTM Standard Guide for Use of the Petroleum Measurement Tables, ASTM D1250-08 (Reapproved 2013), or the API Technical Data Book – Petroleum Refining Chapter 6 – Density (Sixth Edition, April 1997), all three of which are incorporated herein by reference, or by comparable means that can be demonstrated to a verifier or the Executive Officer to be consistent with these standard methods.

(C) *Fuel Pathway Allocation for Produced Fuel.* If a fuel production facility simultaneously processes multiple feedstocks, the producer or fuel reporting entity must associate each portion of the total fuel produced with processed feedstock during each reporting period (calendar quarter). Feedstock quantities must not be counted more than once for any fuel produced. The fuel reporting entity must use

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

one of the following methods to allocate feedstock to the quantities of produced fuel reported under each certified FPC.

1. The quantity of fuel reported for a fuel pathway code must be determined using the following method:

   a. $Q^{n}_{Fuel\ i} = Y_{average\ yield} \times Q^{n}_{Feedstock\ i}$

      where:

      $Q^{n}_{Fuel\ i}$ is the quantity of produced fuel with a fuel pathway i at a production facility during reporting period n;

      $Y_{average\ yield}$ is the facility's average production yield for all feedstocks as determined during pathway certification; and

      $Q^{n}_{Feedstock\ i}$ is the quantity of feedstock counted as processed for a fuel pathway i at a production facility during reporting period n and the quantity of feedstock inventory associated with the fuel pathway i must be greater than or equal to zero at the end of each reporting period.

   b. If the actual quantity of fuel produced during a reporting period is greater than the quantity calculated using a. above, and all feedstocks in inventory and received by the production facility during the reporting period were included in the fuel pathway application, the excess fuel must be reported under a fuel pathway with the highest CI among all pathways certified for the fuel production facility.

2. Paragraph 1. above notwithstanding, a different allocation methodology may be used with the Executive Officer approval. The methodology must be submitted to the Executive Officer at the time of fuel pathway application and be included in the monitoring plan for verifier's review.

3. Facilities with multiple certified fuel pathways that do not use feedstock inventory accounting must include chemical analysis data supporting the calculated yield (i.e. the converted fraction of measured feedstock) in annual Fuel Pathway Reports. The producer or fuel reporting entity must

use the yield calculated from the most recent prior analysis to determine the quantities of fuel to allocate to each FPC.

(D) *Exports.* If fuel reported in the LRT-CBTS is subsequently exported out of California, the export must be reported in the LRT-CBTS by the entity responsible for reporting export as described in subsection 95483(a).

1. *Reporting Fuel Blends.* When reporting export of fuel blends, the amount of each blendstock shall be reported in the LRT-CBTS. If the accurate blend percentage of each blendstock is not known then default blend percentage values provided on the LCFS web site shall be used for reporting the exports. Default blend percentage values are based on prior year average values.

2. *Substitute Pathways.* When an FPC is not available for reporting a fuel in the LRT-CBTS, a fuel reporting entity must use the Substitute pathway corresponding to its fuel type, pursuant to section 95488.9(d).

(2) *Specific Quarterly Reporting Parameters for Natural Gas (including CNG, LNG, and L-CNG).* For each fueling facility to which CNG, LNG, and L-CNG, is supplied as a transportation fuel:

(A) The quantity of fuel dispensed must be reported per FSE, as set forth in section 95483.2(b), with a certified FPC and with transaction type “NGV Fueling.” For CNG and L-CNG, the quantity of fuel dispensed (in Therms at Higher Heating Value (HHV)) per reporting period separately for all light/medium-duty vehicles (LDV & MDV), for heavy-duty vehicles with compression ignition engines (HDV-CIE), and for heavy-duty vehicles with spark ignition engines (HDV-SIE). For LNG, the volume of fuel dispensed (in gal) per reporting period separately for all LDV/MDV, for HDV-CIE, and for HDV-SIE.

(B) For Bio-CNG, Bio-LNG, and Bio-L-CNG: Biomethane production Company ID and Facility ID.

(C) The total quantity of fuel, summed across all FPCs, dispensed for transportation purpose through the FSE during the reporting period.

(D) When the vehicle application is unknown, for the purpose of reporting, a fueling event of less than 3,500 MJ (30 gasoline gallon equivalents) of fuel dispensed must be reported as NGV Fueling of

LDV/MDV. A fueling event of 3,500 MJ or more must be reported as NGV Fueling of HDV.

(3) *Specific Quarterly Reporting Parameters for Electricity used as a Transportation Fuel*.

(A) *For Non-Metered Residential EV charging.*

1. Within the first 45 days after the end of the quarter, the EDU must provide the Executive Officer Daily Average EV Electricity Use data for the calculation of credits for non-metered charging from the prior quarter. The Executive Officer shall use the method set forth in subsection 95486.1(c)(1), to calculate any credits generated for the quarter and place them into the EDU's LRT-CBTS account; and

2. The LSE must use all credit proceeds to benefit current or future EV drivers in California;

3. The LSE must educate the public and customers on the benefits of EV transportation (including environmental benefits and costs of EV charging, or total cost of ownership, as compared to gasoline);

4. The LSE must provide rate options that encourage off-peak charging and minimize adverse impacts to the electrical grid;

5. The LSE must include, in the Annual Compliance Report, the following supplemental information: an itemized summary of efforts to meet requirements 1. through 3. above and costs associated with meeting the requirements. Investor-owned utilities must also provide 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.

6. For claiming incremental credit for non-metered residential charging, the LSE must be able to provide, upon request of the Executive Officer: the VIN for each electric vehicle claimed and evidence of EV vehicle registration and low-carbon electricity supply at the same location.

7. A non-LSE credit generator must use credit proceeds to benefit EV drivers and their customers, and educate them about the benefits of EV transportation (including

environmental benefits and costs of EV charging, or total cost of ownership, as compared to gasoline). The credit generator must include, in their Annual Compliance Report, an itemized summary of efforts and costs associated with meeting these requirements.

(B) *For Metered Residential EV charging*.

1. For generating base credits, the quantity of electricity (in kWh) used for residential EV charging must be reported per FSE, as set forth in section 95483.2(b), using the Lookup Table pathway for California Average Grid Electricity and with transaction type "EV Charging – Grid."

2. For generating incremental credit for low-CI electricity, the quantity of electricity (in kWh) used for residential EV charging must be reported per FSE, as set forth in section 95483.2(b), using a certified FPC and with transaction type "EV Charging – Non-Grid", and the following requirements must be met:

   a. The reporting entity must be able to provide to the Executive Officer records, upon request, demonstrating that the low-CI electricity is supplied (including through book-and-claim accounting) to the same residences where the EV charging is taking place and during the period for which incremental credits are generated, and that any renewable energy certificates associated with the low-CI electricity were retired in the WREGIS for the purpose of LCFS credit generation;

   b. Records must be provided to the Executive Officer, upon request, demonstrating an EV is owned or leased by an individual dwelling at the claimed residence; and

   c. Only a single entity can generate incremental credits using a low-CI pathway for the same FSE. If two or more entities report for the same FSE to generate incremental credits, no incremental credits will be issued for that FSE.

3. For generating incremental credit for smart charging, the quantity of electricity (in kWh) used for residential EV charging must be reported per FSE, as set forth in section

95483.2(b), using the smart charging pathway CI values and with transaction type "EV Charging – Smart Charging", and the following requirements must be met:

a. The quantity of electricity used for each hourly window, as per Table 7-2 in section 95488.5(f), must be reported;

b. The reporting entity must be able to provide documentation showing the quantity of electricity used during a reporting period broken down by hourly windows upon request by the Executive Officer;

c. Only a single entity can generate incremental credits for smart charging for the same FSE; and

d. Records must be provided to the Executive Officer, upon request, demonstrating the FSE was enrolled in a Time-of-Use rate plan during the reporting period, if offered by the LSE.

(C) *For Non-Residential EV Charging.*

1. For generating credit using grid electricity, the quantity of electricity (in kWh) used for EV charging must be reported per FSE, as set forth in section 95483.2(b), using the Lookup Table pathway for California Average Grid Electricity and with transaction type "EV Charging – Grid."

2. For generating credit using any low-CI electricity, the quantity of electricity (in kWh) used for EV charging must be reported per FSE, as set forth in section 95483.2(b), using a certified FPC and with transaction type "EV Charging – Non-Grid", and the following requirements must be met:

a. The reporting entity must be able to provide to the Executive Officer records, upon request, demonstrating that the low-CI electricity is supplied (including through book-and-claim accounting) to the FSE during the period for which incremental credits are generated, and that any renewable energy certificates associated with the low-CI electricity were retired in the WREGIS for the purpose of LCFS credit generation.

3. For generating credit for smart charging, the quantity of electricity (in kWh) used for EV charging must be reported per FSE, as set forth in section 95483.2(b), using the smart charging pathway CI values and with transaction type "EV Charging – Smart Charging", and the following requirements must be met:

   a. The quantity of electricity used for each hourly window, as per Table 7-2 in section 95488.5(f), must be reported;

   b. The reporting entity must be able to provide documentation showing the quantity of electricity used during a reporting period broken down by hourly windows upon request by the Executive Officer; and

   c. Records must be provided to the Executive Officer, upon request, demonstrating the FSE was enrolled in a Time-of-Use rate plan during the reporting period, if offered by the LSE.

(D) *For Fixed Guideway Systems.* The quantity of electricity used for transit propulsion (in kWh) must be reported per FSE with a certified FPC and with transaction type "Fixed Guideway Electricity Fueling." FSE ID is assigned by system during the registration as specified in section 95843.2(b)(8).

(E) *For Electric Forklifts.* The quantity of electricity used (in kWh) must be reported per FSE with a certified FPC and with transaction type "EV Forklifts Fueling." The quantity of electricity used in electric forklifts may be determined as follows:

1. Quantity of electricity used during a reporting period, as measured per FSE, as set forth in section 95483.2(b), and with transaction type "Forklift Electricity Fueling", in the case of an electric forklift fleet owner or its designee generating credits; or

2. Quantity of electricity estimated using CARB approved methodology. The reporting entity must provide the number of electric forklifts in the fleet for generating credits; or

3. When electric forklift credits are claimed by an EDU, CARB staff will calculate the quantity of electricity supplied to electric forklifts in the EDUs service territory during a reporting period for the generation of credits. This reporting

parameter is exempt from the quarterly reporting deadlines set forth in section 95491(b).

(F) *For Electric Transport Refrigeration Unit.* The quantity of electricity (in kWh) dispensed must be reported per FSE, as set forth in section 95483.2(b), with a certified FPC and with transaction type "eTRU Fueling."

(G) *Electric Cargo Handling Equipment.* The quantity of electricity (in kWh) dispensed must be reported per FSE, as set forth in section 95483.2(b), with a certified FPC and with transaction type "eCHE Fueling."

(H) *Electric Power for Ocean-going Vessel.* The quantity of electricity (in kWh) dispensed must be reported per FSE, as set forth in section 95483.2(b), with a certified FPC and with transaction type "eOGV Fueling."

(I) *Other Electric Transportation Applications.* The quantity of electricity (in kWh) dispensed must be reported per FSE with a certified FPC and with transaction type made available by Executive Officer pursuant to section 95488.7.

(4) *Specific Quarterly Reporting Parameters for Hydrogen Used as a Transportation Fuel.*

(A) The quantity (in kg) of hydrogen fuel dispensed per FSE, as set forth in section 95483.2(b), with a certified FPC and with transaction type "FCV Fueling" by vehicle weight category: LDV & MDV and HDV.

(B) For hydrogen fuel cell forklifts, the amount of hydrogen fuel dispensed (in kg) per FSE with a certified FPC and with transaction type "Forklift Hydrogen Fueling."

(C) Production Company ID and Facility ID.

(D) For hydrogen reported with a pathway that claims carbon intensity reductions for shifts in time of electricity use for electrolytic hydrogen production, the quantity of electricity (in kWh) used to produce hydrogen for each hourly window must be reported with transaction type "FCV Fueling – Smart Electrolysis" and the following requirements must be met:

a. The quantity of electricity used for each hourly window, as per Table 7-2 in section 95488.5(f), must be reported; and

b. The reporting entity must provide documentation showing the quantity of electricity used during a reporting period broken down by hourly windows, upon request by the Executive Officer.

(5) *Specific Quarterly Reporting Parameters for Propane.*

(A) The quantity (in gal) of propane dispensed per FSE, as set forth in section 95483.2(b), with a certified FPC and with transaction type "Propane Fueling."

(B) For renewable propane, the Production Company ID and Facility ID.

(e) *Reporting Requirements for Annual Compliance Reports.* A fuel reporting entity and project operators must submit an annual compliance report that aggregates the quarterly fuel transactions reports and provides the additional information set forth below:

(1) LRT-CBTS generates an annual summary, for each fuel reporting entity and project operator, that includes the following:

(A) The total credits and deficits generated by the fuel reporting entity and project operator in the compliance period, calculated in the LRT-CBTS as per sections 95486.1 and 95489;

(B) Any credits carried over from the previous compliance period;

(C) Any deficits carried over from the previous compliance period;

(D) The total credits acquired from another entity;

(E) The total credits sold or otherwise transferred;

(F) The total credits retired within the LCFS to meet compliance obligation per section 95485; and

(G) Total credits acquired from or pledged for sale into the CCM, if applicable;

(H) Total credits purchased as carryback credits; and

(I) Any credits on administrative hold.

(2) A producer of CARBOB, gasoline, or diesel fuel must report, for each of its refineries, the MCON or other crude oil name designation, amount (in gal), and Country (or State) of origin for each crude supplied to the refinery during the annual compliance period.

(3) All pending credit transfers initiated during a compliance period must be completed prior to submittal of the annual compliance report, if possible. If there is still a pending outgoing credit transfer, the credits will be taken from the account of the Seller that initiated the transfer and the annual compliance report will reflect the adjusted credit balance. If there is a pending incoming credit transfer, the Buyer's annual report will not reflect the balance until the transfer is completed. Upon completion, the annual compliance report must be reopened and resubmitted with the adjusted credit balance.

(4) *Attestations Regarding Environmental Attributes for Biomethane.* Entities reporting bio-CNG, bio-LNG, and bio-L-CNG must submit the environmental attribute attestation pursuant to section 95488.8(i)(2)(C) along with the annual compliance report in the LRT-CBTS.

(f) *Significant Figures*. A regulated entity must report the following quantities as specified below:

(1) Carbon intensity, expressed to the same number of significant figures as shown in Tables 7-1, and 9;

(2) Credits or deficits, expressed to the nearest whole metric ton CO_2 equivalent;

(3) Fuel amounts in units specified in sections 95491(d) and (e), expressed to the nearest whole unit applicable for that quantity; and

(4) Any other quantity must be expressed to the nearest whole unit applicable for that quantity.

(g) A fuel reporting entity must maintain a non-negative value for Total Obligated Amount and Total Amount, as defined in section 95481, for each FPC as summed across all quarterly data in the LRT-CBTS.

(h) *Correcting a Previously Submitted Report.* Upon discovery of an error, a fuel reporting entity may request to have previously submitted quarterly reports for the current compliance periods reopened for corrective edits and resubmittal by submitting a Correction Request Form online in the LRT-CBTS. The fuel reporting entity is required to provide justification for the report corrections and indicate the specific corrections to be made to the report. Pursuant to section 95486(a)(2), no credits may be claimed, and no deficits may be eliminated,

retroactively for a quarter for which the quarterly reporting deadline has passed. Each submitted request is subject to Executive Officer review and approval. Permission to correct a report does not preclude enforcement based on misreporting.

Table 11. Summary Checklist of Quarterly and Annual Reporting Requirements.

Parameters to Report	***Gasoline & Diesel Fuel Blends***	***Natural Gas & Propane***	***Electricity***	***Hydrogen***	***Neat Ethanol, Biomass-Based Diesel Fuels, Alternative Jet Fuel & Other Alternative Fuels***
For Quarterly Reporting					
Organization FEIN	x	x	x	x	x
Reporting Period (year & quarter)	x	x	x	x	x
Fuel Pathway Code	x	x	x	x	x
Transaction Type	x	x	x	x	x
* Transaction Date	x	x	x	x	x
Business Partner (if applicable)	x	x			x
Production Company ID and Facility ID	x**	x**	n/a	x	x**
Fueling Supply Equipment ID	n/a	x	x	x	n/a
Vehicle Identifier (if applicable)	n/a	n/a	x	n/a	n/a
Aggregated Transaction Indicator (T/F)	x	x	n/a	x	x
Fuel Application	x	x	x	x	x
Amount of each gasoline and diesel blendstock	x	n/a	n/a	n/a	n/a
Amount of each fuel used as gasoline or diesel replacement	n/a	x	x	x	x
Amount of each fuel used as a jet fuel replacement	n/a	n/a	n/a	n/a	x
MCON or other crude oil name designation, volume (in gal), and country (or state) of origin for each crude supplied to the refinery	x	n/a	n/a	n/a	n/a
For Annual Reporting (in addition to the items above)					

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

Parameters to Report	***Gasoline & Diesel Fuel Blends***	***Natural Gas & Propane***	***Electricity***	***Hydrogen***	***Neat Ethanol, Biomass-Based Diesel Fuels, Alternative Jet Fuel & Other Alternative Fuels***
***Credits and Deficits generated per year (MT)	x	x	x	x	x
***Credits/deficits carried over from the previous year (MT), if any	x	x	x	x	x
***Credits acquired from another entity (MT), if any	x	x	x	x	x
***Credits sold to another entity (MT), if any	x	x	x	x	x
***Credits pledged for sale into CCM (MT), if any	x	x	x	x	x
***Credits retired within LCFS (MT) to meet compliance obligation , if any	x	x	x	x	x
MCON or other crude oil name designation, volume (in gal), and country (or state) of origin for each crude supplied to the refinery	x	n/a	n/a	n/a	n/a

** Same as Title Transfer Date; For Aggregated Transactions enter the last day of the reporting period.*
*** Does not apply to CARBOB, Diesel Fuel, Fossil Propane, or Fossil NG.*
**** Value will be calculated, stored and displayed in the LRT-CBTS.*

Table 12. Annual Compliance Calendar.

February 14	Upload all Q4 fuel transactions data in the LRT-CBTS and begin any needed reconciliation with business partners; Electrical Distribution Utility (EDU) that has opted into LCFS provide the data relevant to the calculation of base credits for non-metered EV charging for the prior quarter
March 31	Submit final Q4 fuel transactions report; Submit Q4 Crude Oil Reports (MCON Reports)
March 31	Annual Fuel Pathway Reports are due to the Executive Officer
April 30	Submit final Annual Compliance Report for preceding year; demonstrate compliance; voluntary pledge of credits for sale into Credit Clearance Market (CCM)
April 30	Annual Crude Oil Reports (MCON Reports) are due to the Executive Officer
May 15	Upload all Q1 fuel transactions data in the LRT-CBTS and begin any needed reconciliation with business partners; EDU that has opted into

	LCFS provide the data relevant to the calculation of base credits for non-metered EV charging for the prior quarter
May 15	Executive Officer announces whether CCM will occur
June 1	Executive Officer posts list of CCM buyers and sellers
June 1	CCM opens and in effect for June and July
June 30	Submit final Q1 fuel transactions report; Submit Q1 Crude Oil Reports (MCON Reports)
July 31	CCM for prior year closes
August 14	Upload all Q2 fuel transactions data in the LRT-CBTS and begin any needed reconciliation with business partners; EDU that has opted into LCFS provide the data relevant to the calculation of base credits for non-metered EV charging for the prior quarter
August 31	Entities that bought and sold credits in the CCM submit amended Annual Compliance Report
August 31	Verification Statements for Fuel Pathway Reports, Quarterly Fuel Transactions Reports, and Quarterly and Annual Crude Oil Reports are due to the Executive Officer
September 30	Submit final Q2 fuel transactions report; Submit Q2 Crude Oil Reports (MCON Reports)
November 14	Upload all Q3 fuel transactions data in the LRT-CBTS and begin any needed reconciliation with business partners; EDU that has opted into LCFS provide the data relevant to the calculation of base credits for non-metered EV charging for the prior quarter
December 31	Submit final Q3 fuel transactions report; Submit Q3 Crude Oil Reports (MCON Reports)

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95491.1. Recordkeeping and Auditing.

(a) *Record Retention.* Any record required to be maintained under this subarticle shall be retained for ten years. All data and calculations submitted by a regulated entity for demonstrating compliance, or generating credits or deficits

are subject to inspection by the Executive Officer or a verification body accredited by the Executive Officer pursuant to section 95502, and must be made available within 20 days upon request of the Executive Officer.

(1) *Record Retention for Fuel Reporting Entities.* Fuel reporting entities must maintain all records and calculations relied upon for data reported in the LRT-CBTS. These records include, but are not limited to:

(A) Product transfer documents;
(B) Copies of all data reports submitted to the Executive Officer;
(C) Records related to each fuel transaction; (D) Records used for each credit transaction;
(E) Records related to FSE registration, including but not limited to copies of monthly utility bills, Bills of Lading, Division of Measurement Standards' certificates, and any other document used as a proof at the time of FSE registration pursuant to this subarticle;
(F) Chain of custody evidence for produced fuel imported into California;
(G) Attestations regarding environmental attributes associated with book-and-claim accounting for biomethane pursuant to 95488.8(i)(2)(C); and
(H) Records used for compliance or credit and deficit calculations.

(2) *Record Retention for Fuel Pathway Holders and Applicants.* Fuel pathway holders and applicants must maintain all records relied upon in producing fuel pathway applications and annual Fuel Pathway Reports. The retained documents, including CI input source data and supplemental documentation, must be sufficient to allow for verification of each CI calculation. These records include but are not limited to:

(A) The quantity of fuel produced and subsequently sold in California under the certified fuel pathway. Sales invoices, contracts, and bills of lading for those fuel sales shall be retained.

(B) The quantity of feedstocks purchased to produce the fuel specified in subsection (A) above. Invoices from the sellers and purchase contracts shall be retained. Records to support material balance and energy balance calculations for facilities processing multiple feedstocks.

(C) The quantity of all forms of energy consumed to produce the fuel covered in subsection (A) above. All invoices for the purchase of process fuel, and all receipts for the sale of the fuel pathway applicant's finished fuel shall be maintained.

(D) Copies of the federal RFS Third Party Engineering Review Report, if required pursuant to 40 CFR 80.1450.

(E) The quantity of all products co-produced with the fuel covered by certified LCFS pathway. Copies of invoices, contracts, and bills of lading covering those sales shall be retained. In addition, copies of the federal RFS Fuel Producer Co-products Report shall be retained, if applicable. If the amount of co-product produced exceeds the amount sold by five percent or more, full documentation of the fate of the unsold fractions shall be maintained.

(F) Evidence demonstrating chain of custody from the point of origin along the supply chain to the fuel production facility is required for any feedstock defined as a specified source feedstock pursuant to section 95488.8(g). A copy of the federal RFS separated food waste plan required pursuant to 40 CFR 80.1450(b)(1)(vii)(B), if applicable.

(G) Any additional records that the Executive Officer requests during pathway certification, and records that demonstrate compliance with all special limitations and operating conditions issued at the time of certification.

(H) Attestations regarding environmental attributes associated with book-and-claim accounting for biomethane pursuant to 95488.8(i)(2)(C).

(3) *Record Retention for Verification Bodies.* The verification body providing verification services pursuant to this subarticle must retain the following:

(A) The sampling plan in paper, electronic, or other format for a period of no less than ten years following the submission of each validation or verification statement. The sampling plan must be made available to the Executive Officer upon request.

(B) All material received, reviewed, or generated to render a validation or verification statement for an entity required to validate and verify under LCFS. The documentation must allow for a transparent review of how a verification reached its conclusion in the validation or verification statement, including independent review.

(b) *Documenting Fuel Transfers Reported in the LRT-CBTS.* A product transfer document provided by a fuel reporting entity pursuant to section 95483(a) must prominently state the information specified below.

(1) For transfers where an LCFS obligation to act as a credit or deficit generator is being passed to the recipient:

(A) Transferor Company Name, Address and Contact Information;

(B) Recipient Company Name, Address and Contact Information;

(C) Transaction Date: Date of Title Transfer for Fuel;

(D) Fuel Pathway Code (FPC) and Carbon Intensity (CI);

(E) Fuel Quantity and Units;

(F) A statement identifying whether the LCFS obligation to act as a credit or deficit generator is passed to the recipient; and

(G) Fuel Production Company ID and Facility ID as registered with RFS program or LCFS program. This does not apply to CARBOB, Diesel Fuel or Fossil NG.

(2) For transfers where the LCFS obligation to act as a credit or deficit generator was retained by the transferor, the following is to be provided to the recipient and passed along to any subsequent owner or supplier:

(A) All information identified in subsection 95491.1(b)(1) above as items (A) through (G);

(B) The following notice reading as follows:

"This transportation fuel has been reported to the CARB LCFS Program by <*Insert name of Fuel Reporting Entity holding LCFS obligation to act as a credit or deficit generator*> for intended use in California. If you export this fuel from California you must report to the CARB LCFS Program (www.arb.ca.gov/lcfsrt). Contact the CARB LCFS Administrator for assistance with reporting exported amounts (lrtadmin@arb.ca.gov)."

(c) *Monitoring Plan for Entities Required to Validate or Verify.* Each entity responsible for obtaining a validation or verification statement under this subarticle must complete and retain for review by a verifier, or the Executive Officer, a written Monitoring Plan. Entities also reporting pursuant to MRR may use a single monitoring plan for both programs, so long as all of the following

elements are included and clearly identified:

(1) The monitoring plan must contain the following general items and associated references to more detailed information:

(A) Information to allow CARB and the verification team to develop a general understanding of boundaries and operations relevant to the entity, facility, or project, including participation in other markets and other third-party audit programs;

(B) Reference to management policies or practices applicable to reporting pursuant to this subarticle, including recordkeeping;

(C) Explanation of the processes and methods used to collect necessary data for reporting pursuant to this subarticle, including identification of changes made after January 1, 2019;

(D) Explanations and queries of source data to compile summary reports of intermediate and final data necessary for reporting pursuant to this subarticle;

(E) Reference to one or more simplified block diagrams that provide a clear visual representation of the relative locations and positions of measurement devices and sampling locations, as applicable, required for calculating reported data (e.g., temperature, total pressure, LHV or HHV, fuel consumption); the diagram(s) must include storage tanks for raw material, intermediate products, and finished products, fuel sources, combustion units, and production processes, as applicable;

(F) Clear identification of all measurement devices supplying data necessary for reporting pursuant to this subarticle, including identification of low flow cutoffs as applicable, with descriptions of how data from measurement devices are incorporated into the submitted report;

(G) Descriptions of measurement devices used to report LCFS data and how acceptable accuracy is demonstrated, e.g., installation, maintenance, and calibration method and frequency for internal meters or how the criteria in MRR section 95103(k)(7) are met to demonstrate meters are financial transaction meters such that the accuracy is

acceptable; this provision does not apply to data reported in the LRT-CBTS for generating credits for EV charging;

(H) Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems, flow meters, and other instrumentation used to provide data for LCFS reports;

(I) Original equipment manufacturer (OEM) documentation or other documentation that identifies instrument accuracy and required maintenance and calibration requirements for all measurement devices used to collect necessary data for reporting pursuant to this subarticle;

(J) The dates of measurement device calibration or inspection, and the dates of the next required calibration or inspection;

(K) Requests for postponement of calibrations or inspections of internal meters and subsequent approvals by the Executive Officer. The entity must demonstrate that the accuracy of the measured data will be maintained pursuant to the measurement accuracy requirements of 95488.8(j);

(L) A listing of the equation(s) used to calculate flows in mass, volume, or energy units of measurement, and equations from which any non-measured parameters are obtained, including meter software, and a description of the calculation of weighted average transport distance;

(M) Identification of job titles and training practices for key personnel involved in LCFS data acquisition, monitoring, reporting, and report attestation, including reference to documented training procedures and training materials;

(N) Records of corrective and subsequent preventative actions taken to address verifier and CARB findings of past nonconformance and material misstatements;

(O) Log of modifications to fuel pathway report conducted after attestation in response to review by third-party verifier or CARB staff;

(P) Written description of an internal audit program that includes data report review and documents ongoing efforts

to improve the entity's LCFS reporting practices and procedures, if such an internal audit program exists; and

(Q) Methodology used to allocate the produced fuel quantity to each certified FPC.

(2) The monitoring plan must also include the following elements specific to fuel pathway carbon intensity calculations and produced quantities of fuels per FPC, as applicable:

(A) Explanation of the processes and methods used to collect necessary data for fuel pathway application and Fuel Pathway Reports and all site-specific CA-GREET3.0 inputs, as well as references to source data;

(B) Description of steps taken and calculations made to aggregate data into reporting categories, for example aggregation of quarterly fuel transactions per FPC;

(C) Methodology for assigning fuel volumes by FPC, if not using a method prescribed/suggested by CARB. If using a CARB suggested methodology, the methodology should be referenced;

(D) Methodologies for testing conformance to specifications for feedstocks and produced fuels, particularly describing physical testing standards and processes;

(E) Description of procedure taken to ensure measurement devices are performing in accordance with the measurement accuracy requirements of 95488.8(j);

(F) Methodology for monitoring and calculating weighted average feedstock transport distance and modes, including the specific documentation records that will be collected and retained on an ongoing basis;

(G) Methodology for monitoring and calculating fuel transport distance and modes, including the specific documentation records that will be collected and retained on an ongoing basis;

(H) References to contracts and accounting records that confirm fuel quantities were delivered into California for transportation use in CI determination, and confirm feedstock and finished fuel transportation distance;

(I) All documentation required pursuant to 95488.8(g)(1)(B) for specified source feedstocks, defined in 95488.8(g)(1)(A);

(3) The monitoring plan must also include the following elements specific to quarterly fuel transactions reports for importers, exporters and producers of alternative fuels, gasoline and diesel, as well as quarterly reports of crude oil information, as applicable:

(A) Documentation that can be used to justify transaction types reported for fuel in the LRT-CBTS must be referenced in the monitoring plan. This can pertain to the production amount, sale/purchase agreements and final fuel dispensing records.

(d) *Verification Outcomes.* Each entity responsible for obtaining a validation or verification statement under this subarticle must obtain third-party verification services from a verification body that meets the requirements specified in section 95502. A positive or qualified positive verification statement for the previous calendar year must be submitted to the Executive Officer by the verification body by August 31 in order to maintain a valid fuel pathway code for use in reporting fuel transactions for credit generation. An adverse transactions verification statement would result in Executive Officer investigation and possible enforcement action.

(e) *Access to Records.* Pursuant to H&S section 41510, the Executive Officer has the right of entry to any premises used, leased, or controlled by a regulated entity in order to inspect and copy records relevant to the determination of compliance. Scheduling of access shall be arranged in advance where feasible and must not unreasonably disturb normal operations, provided, however that access shall not be unreasonably delayed.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95492. Enforcement Protocols.

Notwithstanding any provision of this subarticle, the Executive Officer may enter into an enforceable written protocol with any person to identify conditions under which the person may lawfully meet the recordkeeping, reporting, or demonstration of requirements under this subarticle. The Executive Officer may only enter into such a protocol if he or she reasonably determines that the provisions in the protocol are necessary under the circumstances and at least as effective as the applicable

provisions of this subsection. Any such protocol shall include the person's agreement to be bound by the terms of the protocol(s).

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95493. Jurisdiction.

(a) The following persons are subject to the jurisdiction of the State of California, including the administrative authority of CARB and the jurisdiction of the Superior Courts of the State of California, irrespective of whether the person has registered as a fuel reporting entity in the LRT-CBTS: (1) any person who, pursuant to section 95483 or 95483.1, is the fuel reporting entity; (2) any person to whom the obligation to generate credits or deficits has been transferred directly or indirectly (including the reporting party); (3) any verifier; (4) any project operator; and (5) any fuel pathway or project applicant.

(b) Any of the following actions shall conclusively establish a person's consent to be subject to the jurisdiction of the State of California, including the administrative authority of CARB and the jurisdiction of the Superior Courts of the State of California:

(1) Opting in pursuant to section 95483.1;

(2) Receipt of compensation of any kind, including sales proceeds and commissions, from any transfers of a LCFS credit made pursuant to this subarticle; or

(3) Submittal of information to the Executive Officer pursuant to this subarticle.

(4) Registration in the LRT-CBTS as a broker pursuant to section 95483.2(b).

(5) Verification of reports submitted pursuant to this subarticle.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 3951 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95494. Violations.

(a) CARB may seek penalties and injunctive relief for any violation of this subarticle pursuant to Health and Safety Code section 38580 and Chapter 1.5 of Part 5 of Division 26. Penalties may be assessed for each day of any violation of this subarticle. Violations shall be subject to all other penalties and remedies permitted under State law. In determining any penalty amount, CARB shall consider all relevant circumstances, including the criteria in Health and Safety Code section 43031.

(b) Each day or portion thereof that any report required by this subarticle remains unsubmitted, incomplete, or inaccurate constitutes a separate violation. For purposes of this subsection, "report" means any submittal to the Executive Officer or made in the LRT-CBTS, including any information submitted in response to an Executive Officer request for additional or clarifying information.

(c) Each deficit that is not eliminated at the end of a compliance period or carried over as permitted by section 95485 constitutes a separate day of violation, subject to a penalty not to exceed $1000 per deficit.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 43000, 43025, 43026, 43027, 43028, 43029, 43030 and 43031, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95495. Authority to Suspend, Revoke, Modify, or Invalidate.

(a) If the Executive Officer determines that any basis for invalidation set forth in subsection (b)(1) below occurred, in addition to taking any enforcement action, he or she may: suspend, restrict, modify, or revoke an LRT-CBTS account; modify or delete a Certified CI; restrict, suspend, or invalidate credits; or recalculate the deficits in an LRT-CBTS account. For purposes of this section, "Certified CI" includes any determination relating to carbon intensity made pursuant to sections 95488 through 95488.10, or relating to a credit-generating activity approved under section 95489.

(b) *Determination that a Credit, Deficit Calculation, or Certified CI is Invalid.*

(1) *Basis for Invalidating.* The Executive Officer may modify or delete a Certified CI and invalidate credits or recalculate deficits based on any of the following:

(A) Any of the information used to generate or support the Certified CI was incorrect for reasons including the omission of material information or changes to the process following submission;

(B) Any material information submitted in connection with any Certified CI or credit transaction was incorrect;

(C) Fuel reported under a given pathway was produced or transported in a manner that varies in any way from the methods set forth in any corresponding pathway application documents submitted pursuant to sections 95488 through 95488.10;

(D) Fuel transaction or other data reported into LRT-CBTS and used in calculating credits and deficits was incorrect or omitted material information;

(E) Credits or deficits were generated or transferred in violation of any provision of this subarticle or in violation of other laws, statutes or regulations;

(F) A person obligated to provide records under this subarticle refused to provide such records or failed to produce them within the required time; and

(G) The sequestered CO_2 associated with credits generated for verified greenhouse gas emission reductions by a CCS project was released or otherwise leaked to the atmosphere.

(H) For purposes of this section, “material information” means:

1. Information that would affect by any amount the Executive Officer’s determination of a carbon intensity score, expressed on a gCO_2e/MJ basis to two decimal places, or

2. Information that would affect by any whole integer the number of credits or deficits generated under sections 95486, 95486.1, 95486.2, 95489, or resulting from any transaction or other activity reported in the LRT-CBTS.

(2) *Notice.* Upon making an initial determination that a credit (other than a provisional credit), deficit calculation, or Certified CI (other than a provisionally-certified CI) may be subject to modification, deletion, recalculation, or invalidation under subsection (b)(1), above, the Executive Officer will notify all potentially affected parties, including those who hold or generate credits or deficits based on a Certified CI that may be invalid, and may notify any linked program. The notice shall state the reason for the initial determination, and may be distributed using the LRT-CBTS. Any party receiving such notice may submit, within 20 days, any information that it wants the Executive Officer to consider. The Executive

Officer may request information or documentation from any party likely to have information or records relevant to the validity of a credit, deficit calculation, or Certified CI. Within 20 days of any such request, a regulated entity shall make records and personnel available to assist the Executive Officer in determining the validity of the credit, deficit calculation, or Certified CI.

(3) *Interim Account Suspension.* When the Executive Officer makes an initial determination pursuant to the preceding subsection, the Executive Officer may immediately take steps to suspend an account or a Certified CI as needed to prevent additional accrual of credits or deficits under the Certified CI and to prevent transfer of potentially invalid credits or deficits. Suspension of an account may include locking an account within the LRT-CBTS to prevent credit transfers or report alteration.

(4) *Final Determination*. Within 50 days after making an initial determination under sections 95495(b)(1) and (2), above, the Executive Officer shall make a final determination based on available information whether, in his or her judgment, any of the bases listed in subsection (b)(1) exists, and notify affected parties and any linked program. If the final determination invalidates credits or deficit calculations, the corresponding credits and deficits will be added to or subtracted from the appropriate LRT-CBTS accounts. Where such action creates a deficit in a past compliance period, the deficit holder has 60 days from the date of the final determination to purchase sufficient credits to eliminate the entire deficit. A return to compliance does not preclude further enforcement actions.

(5) *Adjustment of Invalidated Credits or Miscalculated Deficits.* The Executive Officer will seek the following options to address any invalid credits or miscalculated deficits in the program:

(A) First, the Executive Officer may remove the invalid credits from, or add miscalculated deficits to, the account of the credit or deficit generator, or other entity deemed responsible for the invalidation or miscalculation in the final determination pursuant to section 95486. The entity is responsible for returning its account to compliance.

(B) Next, the Executive Officer may choose to retire credits from the Buffer Account to address invalidated credits or uncovered deficits.

(C) After exercising options in subsection (A) and (B) above, the Executive Officer may remove remaining invalid credits from an entity's account that holds or previously held invalid credits. The entity is responsible for returning its account to compliance.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v.*

Orange County Air Pollution Control District, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95496. [Reserved].

§ 95496. [Reserved].

§ 95497. Severability.

Each provision of this subarticle shall be deemed severable, and in the event that any provision in this subarticle is held to be invalid, the remainder of this subarticle shall continue in effect.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and Western Oil and Gas Ass'n v. Orange County Air Pollution Control District, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and Western Oil and Gas Ass'n v. Orange County Air Pollution Control District, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95498. [Reserved].

§ 95499. [Reserved].

§ 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.

(a) *Validation of Fuel Pathway Applications (CIs).*

(1) *Applicability*. The following entities must obtain the services of a verification body accredited by the Executive Officer for purposes of conducting verification services, including required site visit(s), for each fuel pathway application submitted under this subarticle.

(A) Fuel pathway applicants supplying site-specific CI data for the fuel pathway application, as specified in sections 95488.5 through 95488.8.

(B) Specified source feedstock suppliers and other entities with site-specific CI data who apply for separate Executive Officer recognition as a joint applicant and elect to be responsible for separate validation and verification as specified in section 95488(b).

(b) *Verification of Annual Fuel Pathway Report (CIs).*

(1) *Applicability*. The following entities must obtain the services of a verification body accredited by the Executive Officer for purposes of conducting verification services, including required site visit(s), for each Fuel Pathway Report submitted under this subarticle.

(A) Holders of certified fuel pathways who supplied site-specific CI data for pathway certification and are required to update site-specific CI data on an annual basis, as specified in this subarticle, are responsible for annual verification of their Fuel Pathway Report.

(B) Specified source feedstock suppliers and other entities with site-specific CI data who apply for separate Executive Officer recognition as a joint applicant and elect to be responsible for separate validation and verification as specified in section 95488(b).

(2) *Verification Schedule.* Entities required to contract for verification of Fuel Pathway Reports (CI) must ensure a fuel pathway verification statement for each Fuel Pathway Report is submitted to the Executive Officer according to the following schedule.

(A) *Annual Verification.* Verification statements are due to the Executive Officer by August 31 of the year the annual Fuel Pathway Report is submitted, beginning in 2021 for 2020 data, unless eligible to defer verification, as specified in section 95500(b)(2)(B).

(B) *Deferred Verification.* Fuel pathway holders producing alternative fuels may defer verification of their annual Fuel Pathway Reports for each production facility up to two years if the quantity of fuel produced at the production facility and reported by any entity does not result in 6,000 or more credits and 6,000 or more deficits generated in LRT-CBTS during the prior calendar year and does not include a fuel pathway with biomethane supplied using book-

and-claim accounting pursuant to section 95488.8(i)(2).

The verification body must submit fuel pathway verification statements to the Executive Officer for all prior unverified reports on August 31 of the year verification is required for the production facility.

(C) Verification services may not begin until the entity required to contract for verification services attests that the data submitted to the Executive Officer is true, complete, and accurate by certifying under penalty of perjury under the laws of the State of California.

"Quarterly review" for purposes of this subarticle means a review process conducted by the verification team after quarterly data is submitted and before annual data is submitted and verified. Quarterly review does not supersede the requirements for the verification team to consider all quarterly data submitted during annual verification. Quarterly review is optional for annual Fuel Pathway Reports, Quarterly Fuel Transactions Reports, and Crude Oil Quarterly and Annual Volumes Reports. Quarterly review must conform to the requirements for verification services in section 95501. A verification statement and verification report are not submitted after quarterly review.

Quarterly review of operational CI data may only be included as part of annual verification services if the fuel pathway holder submits quarterly data to the Executive Officer. Quarterly review may only be conducted after the fuel pathway holder submits the report and attests that the statements and information submitted are true, accurate, and complete.

(c) *Verification of Quarterly Fuel Transactions Reports*

(1) *Applicability*. Entities submitting Quarterly Fuel Transactions Reports under this subarticle that include the following transaction types must obtain the services of a verification body accredited by the Executive Officer for purposes of conducting verification services, including required site visit(s). The scope of verification services would be limited to the following transaction types, including associated corrections submitted in annual reports under this subarticle.

(A) For all liquid fuels:

1. Production in California;
2. Production for Import;
3. Import;

4. Export;
5. Gain of Inventory;
6. Loss of Inventory; and
7. Not Used for Transportation.

(B) NGV Fueling;

(C) Propane Fueling; and

(D) FCV Fueling for hydrogen produced from biomethane supplied using book-and-claim accounting pursuant to section 95488.8(i)(2).

(2) *Verification Schedule.* Entities responsible for verification of Quarterly Fuel Transactions Reports must ensure a transactions data verification statement is submitted to the Executive Officer according to the following schedule.

(A) *Annual Verification*. The entity required to contract for verification of Quarterly Fuel Transactions Reports must ensure a transactions verification statement is submitted annually by August 31, beginning in 2021 for 2020 data, to the Executive Officer for the prior calendar year of data unless specified otherwise in sections 95500(c)(2)(B) or 95500(c)(2)(C).

Quarterly review of a Quarterly Fuel Transactions Report may only be included as part of annual verification services after the entity submits the report and attests that the statements and information submitted are true, accurate, and complete.

(B) *Deferred Verification.* Fuel pathway holders producing alternative fuels may defer annual verification of their Quarterly Fuel Transactions Reports for each production facility up to two years if the quantity of fuel produced at the production facility and reported by any entity does not result in 6,000 or more credits and 6,000 or more deficits generated in LRT-CBTS during the prior calendar year.

Fuel reporting entities only reporting alternative fuel quantities using Lookup Table Pathways may defer annual verification of their Quarterly Fuel Transactions Reports up to two years if they do not generate 6,000 or more credits and 6,000 or more deficits in LRT-CBTS during the prior calendar year.

Any fuel quantity reported under a pathway with biomethane supplied using book-and-claim accounting pursuant to section 95488.8(i)(2) is not eligible for deferred verification.

The verification body must submit transactions verification statements to the Executive Officer for all prior unverified reports on August 31 of the year verification is required for the production facility.

(C) *Verification Exemption for Designated Liquid Fuel Transactions*. Entities reporting fuel transactions as Export, Gain of Inventory, Loss of Inventory, and Not Used for Transportation, which do not result in 6,000 or more credits and 6,000 or more deficits generated in LRT-CBTS in a calendar year are exempt from verification of the Quarterly Fuel Transactions Reports for that calendar year if all the following conditions are met:

1. The entity did not report any liquid fuel using the transaction types: Production in California, Production for Import, or Import; and

2. The entity did not report any transactions specified in section 95500(c)(1)(B) or 95500(c)(1)(C).

(d) *Verification of Crude Oil Quarterly and Annual Volumes Reports.*

(1) *Applicability.* Entities submitting crude oil volume data must obtain the services of a verification body accredited by the Executive Officer for purposes of conducting verification services, including required site visit(s), for Crude Oil Quarterly and Annual Volumes Reports submitted under this subarticle.

(2) *Verification Schedule.* Entities required to contract for verification of Crude Oil Quarterly and Annual Volumes Reports must ensure a crude oil volume verification statement for the prior calendar year of data is submitted to the Executive Officer annually by August 31st, beginning in 2021 for 2020 data.

Quarterly review of a Crude Oil Quarterly Volumes Report may only be conducted as part of annual verification services after the entity submits the quarterly report and attests that the statements and information submitted are true, accurate, and complete.

(e) *Verification of Project Reports.*

(1) *Applicability.* The following entities must obtain the services of a verification body accredited by the Executive Officer for purposes of conducting verification services, including required site visit(s), for Project Reports submitted under this subarticle:

(A) Project operators and joint applicants for refinery investment project reports;

(B) Project operators and joint applicants for innovative crude project reports;

(C) Project operators and joint applicants for renewable hydrogen project reports; and

(D) Project operators and joint applicants for direct air capture project reports.

(2) *Verification Schedule.* Entities submitting Project Reports may elect to conduct quarterly or annual verification. Entities must determine before the initial verification of a Project Report whether to conduct quarterly or annual verification. If an entity elects to conduct quarterly verification, it may only switch to annual verification at the beginning of a calendar year.

Entities electing quarterly verification must ensure each quarterly project data verification statement is submitted to the Executive Officer within five months of the Quarterly Project Report deadline beginning with 2020 data.

Entities electing annual verification must ensure annual project data verification statements are submitted to the Executive Officer by August 31, 2021 for submittal of 2020 data, and annually thereafter.

(f) *Verification of Low-Complexity/Low-Energy-Use Refinery Reports.*

(1) *Applicability.* Entities submitting Low-Complexity/Low-Energy-Use refinery data must obtain the services of a verification body accredited by the Executive Officer for purposes of conducting verification services, including required site visit(s), for Low-Complexity/Low-Energy-Use Refinery Reports submitted under this subarticle.

(2) *Verification Schedule*. The verification body must submit an annual verification statement to the Executive Officer for the prior calendar year by August 31, beginning in 2021 for 2020 data.

(g) *Verification Body and Individual Verifier Rotation Requirements.* An entity that is required to contract for validation or verification must not use the same verification body or individual verifier(s) to perform validation and verification services under this subarticle for a period of more than six consecutive years, beginning January 1, 2020.

The six-year period begins on the execution date of the entity's first contract for any validation or verification under this subarticle and ends on the date the final verification statement is submitted. The six-year limit does not reset upon a change in ownership or operational control of the entity required to contract for validation or verification services.

If the entity is required or elects to contract with another verification body or verifier(s), the entity may re-engage the previous verification body or verifier(s) only after three years, except in the case of a set-aside of a validation or verification statement as specified in section 95501. An entity required to contract for validation or verification services must, in time for the next verification, replace a verification body that has a suspended or revoked Executive Order pursuant to MRR section 95132(d), and included by reference in section 95502(a).

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95501. Requirements for Validation and Verification Services.

Validation and verification services must be performed by verification bodies accredited by the Executive Officer; in addition, such services must meet the following requirements (the general term "verification services" includes validation services for fuel pathway applications unless otherwise provided):

(a) *Notice of Verification Services.* The verification body must submit a notice of validation or verification services to the Executive Officer.

For verification bodies, the notice must be submitted to the Executive Officer after the Executive Officer has provided a determination that the potential for a conflict of interest is acceptable, as specified in section 95503(e), and that verification services may proceed. The verification body may begin services for the entity required to contract for verification services after the notice is received by the Executive Officer, but the verification body must allow a minimum of 14 calendar days advance notice of the site visit unless an earlier date is approved by the Executive Officer in writing. In the event that the conflict of interest statement and the notice of verification services are submitted together, services cannot begin until ten calendar days after the Executive Officer has deemed acceptable the potential for conflict of interest as specified in 95503(e).

The verifier's notice must include all the following information:

(1) A list of personnel who will be designated to provide verification services as a verification team, including the names of each designated employee, the lead verifier, and all subcontractors, and a description of the roles and responsibilities each team member will have. The independent reviewer must also be listed separately.

(2) Documentation that the verification team has the skills required to provide verification services for the entity required to contract for verification services and type of application or report. The notice must include a demonstration that the verification team includes at least one member with specified competency that is not also the independent reviewer, when required below:

(A) Specified competency as evidenced by experience in alternative fuel production technology and process engineering when providing validation services for fuel pathway applications or verification services for Fuel Pathway Reports;

(B) Specified competency as evidenced by accreditation by the Executive Officer as an oil and gas systems specialist pursuant to MRR when providing verification services for Quarterly Fuels Transactions Reports submitted by producers and importers of gasoline or diesel, Crude Oil Quarterly and Annual Volumes Reports, and Project Reports as listed in section 95500.

(3) General information on the entity required to contract for verifications, including:

(A) The entity's name and the facilities and other locations that will be subject to verification services, and the contact, address, telephone number and e-mail address for the entity required to contract for verification services;

(B) The LCFS ID(s) for the entity required to contract for verification services;

(C) The date(s) of the on-site visit, if required in section 95501(b)(3), with physical address and contact information;

(D) A brief description of expected verification services to be performed, including expected completion date, and whether quarterly review is planned in the context of an annual verification requirement.

(4) If any of the information under sections 95501(a)(1) or 95501(a)(2) changes after the notice is submitted to the Executive Officer, the

verification body must notify the Executive Officer as soon as the change is made and submit an updated notice of verification services.

The verification body must also submit an updated conflict of interest self-evaluation form with an updated notice of verification services as soon as the change is made. The conflict of interest must be reevaluated pursuant to section 95503(e) and the Executive Officer must approve any changes in writing.

(b) Verification services must include, but are not limited to, the following:

(1) *Validation or Verification Plan*. The verification team must develop a validation or verification plan based on the following:

(A) Information from the fuel pathway applicant, pathway holder, or reporting entity. Such information must include all the following:

1. Information to allow the verification team to develop an understanding of facility or entity boundaries, operations, accounting practices, type of LCFS report(s) the entity is responsible for, LCFS regulatory sections they are subject to, other renewable or low carbon fuels markets they participate in, and other mandatory or voluntary auditing programs they are subject to, as applicable;

2. Organizational chart and list of key personnel involved in developing applications and reports submitted to the Executive Officer, as specified in section 95500, and their qualifications, including training;

3. Description of the specific methodologies used to quantify and report data, as required in this subarticle, which are needed to develop the validation or verification plan, including but not limited to calibration procedures and logs for measurement devices capturing site-specific data;

4. Information about the data management systems and accounting procedures used to capture and track data for fuel pathway application and each type of report as needed to develop the validation or verification plan;

5. Information about the entities in the supply chain upstream and downstream of the fuel producer that contribute to site-specific CI data, including a list of feedstock suppliers and contact names with physical addresses;

6. Evidence demonstrating that any joint applicants are being separately verified and thus are outside the scope of the instant verification services being provided by the verification body; and

7. Previous LCFS validation and verification reports, as applicable, and other audit reports including reports from production or management system certifications and internal audits.

(B) Timing of verification services. Such information must include:

1. Dates of proposed meetings and interviews with personnel of the entity required to contract for verification services ;

2. Dates of proposed site visits;

3. Types of proposed document and data reviews and, if applicable, how quarterly review is planned in the context of an annual verification requirement;

4. Expected date for completing validation or verification services.

(2) *Planning Meetings with the Entity Required to contract for Verification Services.* The verification team must discuss with the entity contracting for verification services the scope of the verification services and request any information and documents needed for the verification services. The verification team must create a draft sampling plan and verification plan prior to the site visit. The verification team must also review the documents provided, and plan and conduct a review of original documents and supporting data for the verification services specified in section 95501.

(3) *Site Visits.* At least one lead LCFS verifier accredited by the Executive Officer on the verification team must, in addition to one visit to validate an application, annually visit each facility; and, if different from the fuel production facility, the central records location for which the records supporting an application or report subject to verification are submitted. Site visits, included voluntarily as part of a quarterly review, may not substitute for the required site visit for annual verification services, which must occur after all LCFS data for the prior calendar year has been submitted to the Executive Officer and attested to.

(A) During site visits, the verification team member(s) must carry out tasks that, in the professional judgment of the team, are necessary,

including the following:

1. Review supporting evidence used to develop reports listed in section 95500 submitted to the Executive Officer;

2. Interview key personnel, such as process engineers, metering experts, accounting personnel, and project operators, as well as staff involved in compiling data and preparing the LCFS reports;

3. Review and understand the data management systems and accounting practices used by the entity to acquire, process, track, and report LCFS data. The verification team member(s) must evaluate the uncertainty and effectiveness of these systems;

4. Directly observe production equipment, confirming diagrams for processes, piping, and instrumentation; measurement system equipment; and accounting systems for data types determined in the sampling plan to be high risk;

5. Assess conformance with measurement accuracy requirements specified in this subarticle for measurement devices that do not meet criteria for financial transactions meters, assess the reasonableness of temporary measurement methods, assess conformance with the monitoring plan, and assess conformance with data capture requirements specified in this subarticle, if applicable.

6. Review financial transactions to confirm complete and accurate reporting.

(4) *Sampling Plan.* As part of validating fuel pathway applications and verifying LCFS reports the verification team must develop a sampling plan that meets the following requirements:

(A) The verification team must develop a sampling plan based on a strategic analysis developed from document reviews and interviews to assess the likely nature, scale and complexity of the verification services for the entity required to contract for verification services and type of report. The analysis must include a review of: the inputs for the development of the submitted applications and reports specified in section 95500; the rigor and appropriateness of data management systems; and the coordination within the responsible entity's organization to manage the operation and maintenance of equipment and systems used to complete

applications and reports.

(B) The sampling plan must include a ranking of data sources by relative contribution to the data type to be assessed for material misstatement and a ranking of data sources with the largest calculation uncertainty, including risk of incomplete reporting, based on type of report or application.

(C) The sampling plan must include a qualitative narrative of uncertainty risk assessment in the following areas as applicable in this subarticle:

1. Data acquisition equipment;
2. Data sampling and frequency;
3. Data processing and tracking;
4. Tracking of fuel transportation into California to include modes of transportation and distances traveled, as applicable;
5. CI calculations, as applicable;
6. Fuel pathway code (FPC) allocation methodology, as applicable;
7. Management policies or practices in developing LCFS reports.

(D) After completing the analysis required by sections 95501(b)(4)(A) through (C) above, the verification team must include in the sampling plan a list which includes the following:

1. Data sources that will be targeted for document reviews, data checks as specified in 95501(b)(5), and an explanation of why they were chosen;

2. Methods used to conduct data checks for each data type;

3. A summary of the information analyzed in the data checks and document reviews conducted for each data type.

The sampling plan list must be updated and finalized prior to the completion of verification services. The final sampling plan must describe in detail how the identified risks were addressed during the verification. When quarterly reviews are conducted as part of annual verification services, the final sampling plan must describe in detail how the risks and issues identified for the annual data set were addressed during each quarterly review and final annual verification.

(E) *Specified Source Feedstocks*. Specified source feedstocks included in fuel pathway applications and reports that require third-party verification must be included in the scope of verification services. When a fuel pathway does not require third-party validation or verification, e.g., Lookup Table pathways including hydrogen (gaseous and liquefied) from central SMR of biomethane, specified source feedstocks must be included in the scope of verification of the Quarterly Fuel Transactions Reports. The verification team must use professional judgment and include in its risk assessment and sampling plan its analysis of the need for a desk review or site visit for verification of any entity in the feedstock chain of custody. This analysis must include an evaluation of the need to trace feedstock through feedstock suppliers, including aggregators, storage or pretreatment facilities, and traders or brokers, to the point of origin as required in section 95488.8(g). If an error is detected during data checks of records maintained by the entity required to contract for verification services, the verification team must update its risk assessment and sampling plan to assure specified source feedstock characterization and quantities to the point of origin.

(F) The verification team must revise the sampling plan to describe tasks completed by the verification team as information becomes available and potential issues emerge with material misstatement or nonconformance with the requirements of this subarticle.

(G) The verification body must retain the sampling plan in paper or electronic format (which includes digital media) for a period of no less than ten years following the submission of each validation or verification statement. The sampling plan must be made available to the Executive Officer upon request.

(H) The verification body must retain all material received, reviewed, or generated to render a validation or verification statement for the entity required to contract for verification services for a period of no less than ten years. The documentation must allow for a transparent review of how a verification body reached its conclusion in the validation or verification statement, including independent review.

(5) *Data Checks*. To determine the reliability of the submitted data, the verification team must conduct data checks. Such data checks must focus on the most uncertain data and on data with the largest contributions to greenhouse gas emissions (including life cycle greenhouse gas emissions) and greenhouse gas emission reductions. The selection of data checks must meet all the following criteria:

(A) The verification team must use data checks to ensure that the appropriate methodologies have been applied for the data submitted in applications and reports required in this subarticle;

(B) The verification team must choose data checks to ensure the accuracy of the data submitted in applications and reports required in this subarticle;

(C) The verification team must choose data checks based on the relative contribution to greenhouse gas emissions or reductions and the associated risks of contributing to material misstatement or nonconformance, as indicated in the sampling plan;

(D) The verification team must use professional judgment in establishing the extent of data checks for each data type, as indicated in the sampling plan, which are needed for the team to conclude with reasonable assurance whether the data type specified for the application or report is free of material misstatement. At a minimum, the data checks selected by the verification team must include the following:

1. Tracing data in the application or report to its origin;

2. Reviewing the procedure for data compilation and collection;

3. Recalculating intermediate and final data to check original calculations;

4. Reviewing calculation methodologies used by the entity required to contract for verification services for conformance with this subarticle; and

5. Reviewing meter and analytical instrumentation measurement accuracy and calibration for consistency with the requirements of this subarticle.

(E) The verification team is responsible for determining via data checks whether there is reasonable assurance that the application or report conforms to the requirements of this subarticle.

(F) The verification team must compare its own calculated results with the submitted data in order to confirm the extent and impact of any omissions and errors. Any discrepancies must be investigated. The comparison of data checks must also include a narrative to indicate which data were checked, the quantity of data evaluated

for each data type, the percentage of reported source data covered by the data checks, and any separate discrepancies that were identified in the application or report.

(6) *Application and Report Modifications.* As a result of data checks by the verification team and prior to completion of a validation or verification statement, the entity required to contract for verification services must fix all correctable errors that affect the data submitted in the application or reports specified in section 95500 and submit a revised application or report to the Executive Officer. Failure to do so before completion of verification services will result in an adverse verification statement. Failure to fix misreported data that do not affect credit or deficit calculations represents a nonconformance with this subarticle but does not, absent other errors, result in an adverse validation or verification statement.

The verification team must use professional judgment in identifying correctable errors as defined in section 95481(a), including determining whether differences are not errors but result from truncation or rounding or averaging.

The verification team must document the source of any difference identified, including whether the difference results in a correctable error or on the other hand, was the result of truncation, rounding, or averaging.

(7) *Findings*. To verify that the application or report is free of material misstatements, the verification team shall make its own calculation of the specified data types reported by substituting the checked data from 95501(b)(5). The verification team must determine whether there is reasonable assurance that the application or report does not contain a material misstatement, as defined for each application or report type in section 95481, and calculated pursuant to section 95501(b)(9) through (11), using the units required by the applicable parts of this subarticle. To assess conformance with this subarticle, the verification team must review the methods and factors used to develop the application or report for adherence to the requirements of this subarticle and identify whether other requirements of this subarticle are met.

(8) *Log of Issues*. The verification team must keep a log that documents any issues identified in the course of verification services that may affect determinations of material misstatement and nonconformance, whether identified by the verifier, the entity required to contract for verification services, or the Executive Officer, regarding the original or subsequent application or report versions. The issues log must identify the regulatory section related to the nonconformance or potential nonconformance, if applicable, and indicate if the issues were corrected by the entity required

to contract for verification services prior to completing the verification services. Any other concerns that the verification team has with the preparation of the application or report must be documented in the issues log and communicated to the entity required to contract for verification services during the course of the verification services. The log of issues must indicate whether each issue has a potential bearing on material misstatement, nonconformance, or both and whether an adverse verification statement may result if not addressed. If quarterly review is conducted before an annual verification, any issues identified must be formalized pursuant to this subsection in the log of issues during the quarterly review. The log of issues for the annual verification must include the cumulative record of issues from all quarterly reviews, as well as the annual verification.

(9) *Material Misstatement Assessments for Fuel Pathways and Quarterly Fuel Transactions.* Assessments of material misstatement are conducted separately on each calculated operational CI value and each quarterly fuel transaction quantity per FPC (expressed in units from the applicable sections of this subarticle). Material misstatement assessments are not conducted for quarterly review.

(A) *Operational CI.* In assessing whether a fuel pathway application or fuel pathway report contains a material misstatement, as defined in section 95481(a), the verification team must populate a controlled version of the Simplified CI Calculator for Tier 1 pathways, or CARB-approved CA-GREET3.0 for Tier 2 pathways, and determine whether any reported operational CI value contains a material misstatement using the following equations for relative error threshold and absolute error threshold. The following calculations of relative error threshold, absolute error threshold, and percent error must be included in the final verification report pursuant to section 95501(c)(3)(A)8.

Each fuel pathway CI is subject to data checks in section 95501(b)(5) and must be assessed separately for material misstatement. One or more material misstatements results in a finding of material misstatement for the fuel pathway application or for the fuel pathway report.

$$Percent\ error\ (CI\ ) = \frac{\sum\ |\ Difference\ in\ CI\ |}{|\ Reported\ Operational\ CI\ |} x\ 100\%$$

$$Relative\ error\ threshold\ (CI)$$

$$=|\ Difference\ in\ CI|\ \geq 0.05\ x\ |\ Reported\ Operational\ CI\ Value\ |$$

$Absolute\ error\ threshold\ (CI)$

$= |\ Difference\ in\ CI|\ \geq 2\ gCO2e/MJ$
where:

"$Difference\ in\ CI$" means the absolute value result of the reported operational CI minus the verifier's calculation of CI. The verifier's calculation of CI is based on site-specific data inputs modified to include discrepancies, omissions, and misreporting found during the course of verification services;

"$Discrepancies$" means any differences between the reported site-specific CI inputs and the verifier's calculated site-specific CI inputs subject to data checks in section 95501(b)(5);

"$Omissions$" means any site-specific CI inputs or associated source data the verifier concludes must be part of the fuel pathway application or fuel pathway report, but were not included;

"$Misreporting$" means duplicate, incomplete or other CI input data the verifier concludes should, or should not, be part of the fuel pathway application or fuel pathway report; and

"$|\ Reported\ Operational\ CI\ Value\ |$" means the absolute value of the operational CI submitted in the fuel pathway application or fuel pathway report.

(B) *Quarterly Fuel Transaction Quantities per FPC*. In assessing whether a quarterly fuel transaction report contains a material misstatement, as defined in section 95481(a), the verification team must determine whether any quarterly fuel transaction quantity per FPC specified in section 95500(c)(1) contains a material misstatement using the following equation. The reported quarterly fuel transaction quantity for an FPC contains a material misstatement if the 5 percent error threshold is exceeded. The following calculation of percent error must be included in the final verification report pursuant to section 95501(c)(3)(A)8.

Each aggregated quarterly fuel quantity per FPC is subject to data checks in section 95501(b)(5) and must be assessed separately for material misstatement. One or more material misstatements results in a finding of material misstatement for the verification period.

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

$$Percent\ error\ (fuel\ transaction\ quantity)$$

$$= \frac{\sum\ [Discrepancies, Omissions, Misreporting]}{Reported\ Quarterly\ Fuel\ Transaction\ Quantity\ for\ FPC}\ x\ 100\%$$

where:

"$Discrepancies$" means any differences between the fuel quantity for the FPC reported in the Quarterly Fuel Transactions Report and the verifier's calculation of fuel quantity subject to data checks in section 95501(b)(5);

"$Omissions$" means any fuel quantity the verifier concludes must be part of the Quarterly Fuel Transactions Report, but was not included;

"$Misreporting$" means duplicate, incomplete or other fuel quantity data the verifier concludes should, or should not, be part of the Quarterly Fuel Transactions Report; and

"$Reported\ Quarterly\ Fuel\ Transaction\ Quantity\ for\ FPC$" means the total of all reported fuel quantities for each FPC for each transaction type specified in section 95500(c)(1) for each quarter for which the verifier is conducting a material misstatement assessment.

(C) When evaluating material misstatement, verifiers must deem correctly substituted missing data to be accurate, regardless of the amount of missing data.

(10) *Material Misstatement Assessment for Project Reports (Project-based Crediting).*

(A) Verification services, including assessment of material misstatement, are conducted separately for each Project Report. In assessing whether a Project Report contains a material misstatement, as defined in section 95481(a), the verification team must determine whether the greenhouse gas reductions quantified and reported in the Project Report contain a material misstatement using the following equation.

Any discrepancies, omissions, or misreporting found by the verification team must include the positive or negative impact on the total reported greenhouse gas emission reductions when entered in the material misstatement equation. The reported project data contain a material misstatement if the 5 percent error

threshold is exceeded. The following calculation of percent error must be included in the final verification report pursuant to section 95501(c)(3)(A)8.

$$Percent\ error\ (project\ data\ )$$

$$= \frac{\sum\ [Discrepancies, Omissions, Misreporting]}{Reported\ GHG\ Emissions\ Reduction}\ x\ 100\%$$

where:

"$Discrepancies$" means any differences between the reported greenhouse gas emissions reductions in the Project Report and the verifier's calculated value based on data checks required in section 95501(b)(5);

"$Omissions$" means any greenhouse gas emissions, excluding any greenhouse gas reductions, the verifier concludes must be part of the Project Report, but were not included;

"$Misreporting$" means duplicate, incomplete or other greenhouse gas emissions or reductions data the verifier concludes should, or should not, be part of the Project Report;

"$Reported\ GHG\ emissions\ reduction$" means the total of all greenhouse gas emissions reductions reported in the Project Report for which the verifier is conducting a material misstatement assessment.

(B) When evaluating material misstatement, verifiers must deem correctly substituted missing data to be accurate, regardless of the amount of missing data.

(11) *Material Misstatement Assessment for Low-Complexity/Low-Energy-Use Refinery Reports.*

(A) Verifications and assessments of material misstatement are conducted separately for volumes of CARBOB produced from crude oil and for volumes of diesel produced from crude oil for the calendar year. In assessing whether a Low-Complexity/Low-Energy-Use Refinery Report contains a material misstatement, as defined in section 95481(a), the verification team must determine whether the Low-Complexity/Low-Energy-Use refinery data specified in this subarticle contains a material misstatement using the following equation.

Any discrepancies, omissions, or misreporting found by the verification team must include the positive or negative impact on the total CARBOB or diesel volume produced from crude oil when entered in the material misstatement equation. The reported refinery data contain a material misstatement if the 5 percent error threshold is exceeded. The following calculation of percent error must be included in the final verification report pursuant to section 95501(c)(3)(A)8.

$$Percent\ error\ (low\ complexity\ low\ energy\ use\ refinery\ data\ )$$

$$= \frac{\sum\ [Discrepancies, Omissions, Misreporting]}{CARBOB\ or\ Diesel\ Volume\ Produced\ from\ Crude\ Oil}\ x\ 100\%$$

where:

"$Discrepancies$" means any differences between the sum of the quarterly volumes of CARBOB or diesel produced from crude oil reported in the Low-Complexity/Low-Energy-Use Refinery Report and the verifier's calculation based on data checks in section 95501(b)(5);

"$Omissions$" means any volume of CARBOB or diesel produced from crude oil or associated source data the verifier concludes must be part of the Low-Complexity/Low-Energy-Use Refinery Report, but was not included;

"$Misreporting$" means duplicate, incomplete or other refinery data the verifier concludes should, or should not, be part of the Low-Complexity/Low-Energy-Use Refinery Report;

"$CARBOB\ or\ Diesel\ Volume\ Produced\ from\ Crude\ Oil$" means the sum of the quarterly volumes of CARBOB or diesel produced from crude oil in a calendar year reported in the Low-Complexity/Low-Energy-Use Refinery Report for which the verifier is conducting a material misstatement assessment.

"$CARBOB\ Volume\ Produced\ from\ Crude\ Oil$" and "$Diesel\ Volume\ Produced\ from\ Crude\ Oil$" are separately subject to data checks in section 95501(b)(5) and must be assessed separately for material misstatement. One or more material misstatements results in a finding of material misstatement for the Low-Complexity/Low-Energy-Use Refinery Report.

(B) When evaluating material misstatement, verifiers must deem correctly substituted missing data to be accurate, regardless of the amount of missing data.

(12) *Crude Oil Quarterly and Annual Volumes Reports*. Material misstatement assessment does not apply to data submitted in crude oil quarterly and annual volumes reports, but the data must be assessed for reasonable assurance of conformance with this subarticle.

(13) *Review of Missing Data Substitution*. If a source selected for a data check was affected by a loss of data used for the reported data in the application or report, pursuant to this subarticle:

(A) The verification team must confirm that the reported data were calculated using:

1. the applicable missing data procedures, or
2. a reasonable temporary method, or
3. an Executive Officer approved alternate method.

(B) The verifier must note the date, time and source of any missing data substitutions discovered during the course of verification in the validation or verification report.

(c) Completion of verification services must include:

(1) *Validation or Verification Statement*. Upon completion of the verification services specified in section 95500, the verification body must complete a validation or verification statement, and provide its statement to the entity required to contract for verification services and Executive Officer by the applicable verification deadline specified in section 95500. Before the validation or verification statement is completed, the verification services and findings of the verification team must be independently reviewed by an employee of the verification body who is an accredited lead verifier not involved in verification services for the entity required to contract for verification services during that application period or reporting period.

(2) *Independent Review*. The independent reviewer must serve as a final check on the verification team's work to identify any significant concerns, including:

(A) Errors in planning,

(B) Errors in data sampling, and

(C) Errors in judgment by the verification team that are related to the

draft validation or verification statement.

The independent reviewer must maintain independence from the verification services by not making specific recommendations about how the verification services should be conducted. The independent reviewer will review documents applicable to the services provided, and identify any failure to comply with requirements of this subarticle or with the verification body's internal policies and procedures for providing verification services. The independent reviewer must concur with the verification findings before the validation or verification statement is issued.

(3) *Completion of Findings and Validation or Verification Report and Statement*. The verification body is required to provide each entity required to contract for verification services with the following:

(A) A detailed validation or verification report, which must at a minimum include:

1. A detailed description of the facility or entity including all data sources and boundaries;

2. A detailed description of the data management system and accounting procedures;

3. A detailed description of entities in the supply chain contributing CI parameters;

4. The validation or verification plan;

5. The detailed comparison of the data checks conducted during verification services;

6. The log of issues identified in the course of verification services and their resolution;

7. Any qualifying comments on findings during verification services;

8. Findings of omissions, discrepancies, and misreporting and the material misstatement calculations required in section 95501(b)(9) through (11).

(B) The validation or verification report must be submitted to the entity required to contract for verification services at the same time as or before the final validation or verification statement is submitted to the Executive Officer. The detailed validation or verification report

must be made available to the Executive Officer upon request.

(C) The verification team must have a final discussion with the entity required to contract for verification services explaining its findings, and notify the entity required to contract for verification services of any unresolved issues noted in the issues log before the validation or verification statement is finalized.

(D) The verification body must provide the validation or verification statement to the entity required to contract for verification services and the Executive Officer, attesting whether the verification body has found the submitted application or report to be free of material misstatement, and whether the application or report is in conformance with the requirements of this subarticle. For every qualified positive validation or verification statement, the verification body must explain the nonconformances contained within the application or report, and must cite the section(s) in this subarticle that corresponds to the nonconformance and why the nonconformances do not result in a material misstatement. For every adverse validation or verification statement, the verification body must explain all nonconformances or material misstatements leading to the adverse validation or verification statement and must cite the sections in this subarticle that correspond to the nonconformance and material misstatements.

(E) The lead verifier on the verification team must attest that the verification team has carried out all verification services as required by this subarticle. The lead verifier who has conducted the independent review of verification services and findings must attest to his or her independent review on behalf of the verification body and his or her concurrence with the findings.

1. The lead verifier must attest in the validation or verification statement, in writing, to the Executive Officer as follows:

   "I certify under penalty of perjury under the laws of the State of California that the verification team has carried out all validation or verification services as required by this subarticle."

2. The lead verifier who has conducted the independent review of verification services and findings must attest in the validation or verification statement, in writing, to the Executive Officer as follows:

   "I certify under penalty of perjury under the laws of the State

of California that I have conducted an independent review of the validation or verification services and findings on behalf of the verification body as required by this subarticle and that the findings are true, accurate, and complete."

(4) *Adverse validation or verification statement and petition process.* Prior to the verification body providing an adverse validation or verification statement for the application or report to the Executive Officer, the verification body must notify the entity required to contract for verification services and the entity required to contract for verification services must be provided at least 14 calendar days to modify the application or report(s) to correct any material misstatement or nonconformances found by the verification team. The verification body must provide notice to the Executive Officer of the potential for an adverse validation or verification statement at the same time it notifies the entity required to contract for verification services, and include a current issues log. The modified application or report and validation or verification statement must be submitted to the Executive Officer before the verification deadline, even if the entity required to contract for verification services makes a request to the Executive Officer as provided below in section 95501(c)(4)(A).

(A) If the entity required to contract for verification services and the verification body cannot reach agreement on modifications to the data that result in a positive validation or verification statement, the responsible entity may, before the validation or verification deadline and before the validation or verification statement is submitted, petition the Executive Officer to make a final decision as to the verifiability of the submitted application or report. At the same time that the entity required to contract for verification services petitions the Executive Officer, the entity required to contract for verification services must submit all information it believes is necessary for the Executive Officer to make a final decision.

(B) The Executive Officer shall make a final decision no later than October 31st following the submission of a petition pursuant to section 95501(c)(4)(A). If at any point the Executive Officer requests information from the verification body, or the entity required to contract for verification services, the information must be submitted to the Executive Officer within ten calendar days. The Executive Officer will notify the entity required to contract for verification services and the verification body of its determination.

(d) *Validated Applications and Verified Reports Considered Final by the Executive Officer.* Upon provision of a validation or verification statement to the Executive Officer, the reported data is deemed final by the Executive Officer. No changes may be made to the application or report as submitted to the Executive Officer,

and all verification requirements of this subarticle shall be considered complete except in the circumstance specified in section 95501(e).

(e) *Set Aside of Validation or Verification Statement.* If the Executive Officer finds a high level of conflict of interest existed between a verification body and a reporting entity, an error is identified, or an application or report that received a positive or qualified positive verification statement fails an audit by the Executive Officer, the Executive Officer may set aside the positive or qualified positive verification statement issued by the verification body, and require the reporting entity to have the report re-verified by a different verification body within 90 calendar days. In instances where an error to a report is identified and determined by the Executive Officer to not affect the final value submitted in the application or report, the change may be made without a set aside of the positive or qualified positive verification statement.

(f) *Executive Officer Audits and Data Requests to the Entity Required to Contract for Verification Services.* Upon request by the Executive Officer, the entity required to contract for verification services must provide the data used to generate the application or report including all data available to a verifier in the conduct of validation or verification services, within 14 calendar days. Upon written notification by the Executive Officer, the entity required to contract for verification services must make available for an Executive Officer audit itself, its personnel, and other entities in its feedstock and finished fuel supply chain, as applicable.

(g) *Executive Officer Audits and Data Requests to the Verification Body.* Upon request by the Executive Officer, the verification body must provide the Executive Officer the validation or verification report given to the entity required to contract for verification services, as well as the sampling plan, contracts for verification services, and any other supporting documents and calculations, within 14 calendar days. Upon written notification by the Executive Officer, the verification body must make itself and its personnel available for an Executive Officer audit.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95502. Accreditation Requirements for Verification Bodies, Lead Verifiers, and Verifiers.

(a) Verification bodies, lead verifiers, and non-lead verifiers that will provide verification services (including validation services) under this subarticle must become accredited through fulfilling the accreditation requirements set forth in MRR sections 95132(b) through (e), with the exception of subsections

95132(b)(1)(G), 95132(b)(2), 95132(b)(3), 95132(b)(5), and 95132(e)(1).

MRR text is as referred to, except as otherwise specifically provided:

(1) Wherever "section 95102(a)" is referenced, "section 95481" must be substituted. Wherever "section 95132(b)(2) is referenced, "section 95502(c)" must be substituted. Wherever "section 95133" is referenced, "section 95503" must be substituted.

(2) Whenever "Performance Review" is referenced, the definition in 95481(a) of this subarticle must be substituted.

(b) The Executive Officer may issue accreditation to verification bodies, lead verifiers, and non-lead verifiers that meet the requirements specified in this section.

(1) *Verification Body Accreditation Application.* In addition to the requirements specified in MRR section 95132(b)(1), the applicant must submit the following to the Executive Officer:

(A) Documentation that the proposed verification body has procedures and policies to support staff technical training as it relates to validation or verification. This training must include CARB's verifier training curriculum and be provided by a verification body or verification body applicant to its employees and subcontractors that participate on verification teams. Participation of individual verifiers, including verifiers that are not acting as lead verifiers, must be documented.

(B) The verification body's templates for risk assessment, sampling, and log of issues for the entity types and report types the verification body intends to verify, as specified in section 95500.

(C) Verification body staffing changes are considered an amendment to the verification body accreditation application and therefore the Executive Officer must be notified of any such changes.

(2) *Verifier Accreditation Application.* To apply for accreditation as a lead verifier, the applicant must submit documentation to the Executive Officer that provides the evidence that the applicant meets the criteria in sections 95502(c)(1) though (6). To apply for accreditation as a non-lead verifier, the applicant must submit documentation to the Executive Officer that provides the evidence that the applicant meets the criteria in sections 95502(c)(1) through (2).

(c) *Verifier Competency Requirements.* To perform LCFS verifications, verifiers must be employed by, or contracted with, a verification body accredited by the

Executive Officer and submit evidence to demonstrate that competency requirements are met.

(1) Verifiers must provide evidence demonstrating the minimum educational background required to act as a verifier for CARB. Minimum educational background means that the applicant has either:

(A) A bachelor's level college degree or equivalent in engineering, science, technology, business, statistics, mathematics, environmental policy, economics, or financial auditing; or

(B) Evidence demonstrating the completion of significant and relevant work experience or other personal development activities that have provided the applicant with the communication, technical, and analytical skills necessary to conduct verification.

(2) Verifiers must provide evidence demonstrating sufficient workplace experience to act as a verifier, including evidence that the applicant verifier has a minimum of two years of full-time work experience in a professional role involved in emissions data management, emissions technology, emissions inventories, environmental auditing, financial auditing, life cycle analysis, transportation fuel production, or other technical skills necessary to conduct verification.

(3) To act as a lead verifier, in addition to the qualifications in sections 95502(c)(1) and (2), one of the following qualifications must be met:

(A) The verifier must have participated within the previous two years as part of the verification team in at least three completed LCFS validations or verifications under the supervision of a lead verifier accredited under this subarticle by the Executive Officer;

(B) The verifier must be accredited as a lead verifier under MRR or the Cap-and-Trade Regulation by the Executive Officer;

(C) The verifier must have experience acting as the lead on an attestation engagement services team for the U.S. EPA Renewable Fuel Standard (RFS) program within the previous two years or currently be acting as a team lead;

(D) The verifier must have experience acting as the lead on a Quality Assurance Program (QAP) services team for the U.S. EPA RFS program within the previous two years or currently be acting as a team lead;

(E) The verifier must have experience acting as a the lead on a biofuels

certification audit within the previous two years or currently be acting as a lead under one of the following international certification systems: International Sustainability and Carbon Certification (ISCC), Roundtable on Sustainable Biomaterials (RSB), or Bonsucro; or

(F) The verifier must have worked as a project manager or lead person for no less than four years, of which two may be graduate level work:

1. In the development of greenhouse gas or other air emissions inventories; or,

2. As a lead environmental data or financial auditor.

(G) Candidates meeting one of the lead verifier qualifications in sections 95502(c)(3)(A) through (E) must complete training specific to the LCFS program to become a lead verifier under this subarticle.

Candidates applying under section 95502(c)(3)(F) for accreditation as a lead verifier under this subarticle must take the CARB-approved comprehensive general verification training and examination in addition to the training specific to the LCFS program.

(4) To become accredited as a lead verifier for validation of fuel pathway applications (CI) or verification of Fuel Pathway Reports (CI) as specified in section 95500(a) and 95500(b), in addition to the qualifications in sections 95502(c)(1) through (3), the verifier must have experience in alternative fuel production technology and process engineering.

(5) To become and remain accredited as a lead verifier for verification of Quarterly Fuel Transactions Reports submitted by producers and importers of gasoline or diesel, Low-Complexity/Low-Energy-Use Refinery Report, Crude Oil Quarterly and Annual Volume Reports, and Project Reports as specified in section 95500, in addition to the qualifications in sections 95502(c)(1) through (3), the verifier must be accredited as an oil and gas systems specialist pursuant to MRR section 95131(a)(2).

(6) Nothing in this section shall be construed as preventing the Executive Officer from requesting additional information or documentation from a verifier or affiliated verification body to demonstrate that the verifier meets the competency requirements set forth here, or from seeking additional information from other persons or entities regarding the verifier's fitness for qualification.

Legal Disclaimer: This is an unofficial electronic version of the Low Carbon Fuel Standard Regulation.
The official legal edition is available at the OAL website: http://oal.ca.gov/publications/ccr/
RETURN TO TABLE OF CONTENTS

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95503. Conflict of Interest Requirements for Verification Bodies and Verifiers

(a) *Applicability of Conflict of Interest Provisions.* The conflict of interest provisions of this section shall apply to verification bodies and lead verifiers, including independent reviewers, accredited by the Executive Officer to perform LCFS validation and verification services for responsible entities and must apply to all verification team members.

Any individual person or company that is hired by the entity required to contract with a verification body on behalf of the entity required to contract for verification services is also subject to the conflict of interest assessment in this subarticle. In such instances, the verification body must assess the potential conflict of interest between itself and the contracting entity as well as between itself and the responsible entity, and must also address the potential conflict of interest between the contracting entity and the responsible entity, including a written assessment provided and signed by the contracting entity.

(1) "Member" for the purposes of this section means any employee or subcontractor of the verification body or its related entities.

(2) "Related Entity" for the purposes of this section means any direct parent company, direct subsidiary, or sister company.

(3) "Lookback Period" for the purposes of this section means to disclose services provided and assess potential for conflicts of interest beginning five years preceding the start of verification services.

(4) Emerging conflicts of interest must also be monitored. The monitoring period for determining emerging conflicts of interest is during the period verification services are offered and one year after verification services are completed.

(b) *Disclosure of Services with High Potential for Conflict of Interest*. If any of the following occurred during the lookback period, the activity or activities must be disclosed to the Executive Officer with a description of actions the verification body has taken to avoid, neutralize, or mitigate any ongoing potential for conflict of interest.

The potential for a conflict of interest must be deemed high if any of the following occurred during the lookback period. If the Executive Officer determines the verification body or its related entities or any member of the verification team meets the criteria specified in section 95503(b), the Executive Officer shall find a high potential conflict of interest with the following exceptions:

Prior to August 31, 2023, the Executive Officer shall deem the following services to be medium potential for conflict of interest and allow verification services to proceed when the verification body or its related entities or a member of the verification team has provided the services listed in sections 95503(b)(2)(A), (B), (C), (E), (G), (H), (I), or (N) within the five year lookback period, provided that the potential conflict of interest is mitigated by meeting the minimum mitigation plan requirements in section 95503(d)(1). On and after August 31, 2023, if any of the situations or services listed in section 95503(b) occurred during the five year lookback period by a verification body and its related entities or a verification team member, verification services may not proceed and rotation is required.

(1) Organizational High Potential Conflict of Interest Conditions. The verification body and responsible entity share any management staff or board of directors membership, or any of the senior management staff of the responsible entity have been employed by the verification body, or vice versa; or

(2) Organizational and Individual High Potential Conflict of Interest Conditions. Any employee of the verification body, or any employee of a related entity, or a subcontractor who is a member of the verification team has provided to the responsible entity any of the following services:

(A) Designing, developing, implementing, reviewing, or maintaining an information or data management system for data submitted pursuant to this subarticle or MRR unless the review was part of providing independent quality assurance audit services, attestation engagement services, providing validation or verification services pursuant to the U.S. EPA RFS or the EU RED, or third-party engineering reports pursuant to the U.S. EPA RFS;

(B) Developing CI or fuel transaction data or other greenhouse gas-related engineering analysis that includes facility-specific information;

(C) Designing or providing consultative engineering or technical services in the development and construction of a fuel production facility; or energy efficiency, renewable power, or other projects which explicitly identify greenhouse gas reductions as a benefit;

(D) Designing, developing, implementing, conducting an internal audit, consulting, or maintaining a greenhouse gas emissions reduction or greenhouse gas removal offset project as defined in the Cap-and-Trade Regulation and reported to the Executive Officer, or a project to receive LCFS project-based credits;

(E) Preparing or producing LCFS fuel pathway application or LCFS

reporting manuals, handbooks, or procedures specifically for the responsible entity;

(F) Directly managing any health, environment or safety functions for the responsible entity;

(G) Any service related to development of information systems, or consulting on the development of environmental management systems is considered high conflict of interest except for systems that will not be part of the validation or verification process and except for accounting software systems;

(H) Verification services that are not conducted in accordance with, or equivalent to, section 95503 requirements, unless the systems and data reviewed during those services, as well as the result of those services, will not be part of the verification process;

(I) Reporting pursuant to this subarticle, or uploading data for the Executive Officer, on behalf of the entity required to contract for verification services;

(J) Owning, buying, selling, trading, or retiring LCFS credits, RINs, or credits in any carbon market;

(K) Dealing in or being a promoter of credits on behalf of the responsible entity;

(L) Appraisal services of carbon or greenhouse gas liabilities or assets;

(M) Brokering in, advising on, or assisting in any way in carbon or greenhouse gas-related markets;

(N) Bookkeeping and other non-attest services related to accounting records or financial statements, excluding services and results of those services that will not be part of the validation or verification process;

(O) Appraisal and valuation services, both tangible and intangible;

(P) Any actuarially oriented advisory service involving the determination of amounts recorded in financial statements and related accounts;

(Q) Any internal audit service that has been outsourced by the entity required to contract for verification services that relates to the entity's internal accounting controls, financial systems or financial

statements, unless the result of those services will not be part of the verification or validation process;

(R) Fairness opinions and contribution-in-kind reports in which the verification or validation body has provided its opinion on the adequacy of consideration in a transaction, unless the resulting services will not be part of the verification or validation process;

(S) Acting as a broker-dealer (registered or unregistered), promoter or underwriter on behalf of the responsible entity;

(T) Any legal services;

(U) Expert services to the entity required to contract for verification services, a trade or membership group to which the entity required to contract for verification services belongs, or a legal representative for the purpose of advocating the entity's interests in litigation or in a regulatory or administrative proceeding or investigation.

(3) *Prohibition on Monetary or Non-Monetary Incentives.* The potential for conflict of interest shall be disclosed and deemed to be high when any member of the verification body provides any type of monetary or non-monetary incentive to an entity required to contract for verification services to secure a validation or verification services contract.

The potential for conflict of interest shall be deemed to be high when any member of the entity required to contract for verification services provides any type of monetary or non-monetary incentive to a member of the verification body to influence validation or verification documentation or findings.

(4) Potential for High Conflict of Interest if Rotation Limit Exceeded. The potential for a conflict of interest shall also be disclosed and deemed to be high where any member of the verification body or verification team has provided verification services for the entity required to contract for verification services except within the time periods in which the entity required to contract for verification services is allowed to use the same verification body or team members as specified in section 95500(g).

(c) *Low Conflict of Interest.* The potential for a conflict of interest shall be deemed to be low where the following conditions are met:

(1) No potential for a high conflict of interest is found pursuant to section 95503(b); and

(2) Any services provided by any member of the verification body or verification team to the entity required to contract for verification, within the look-back period specified in section 95503(a)(3), are valued at less than 20 percent of the fee for the proposed verification services. Any verification conducted in accordance with, or substantially equivalent to, section 95503 provided by the verification body or verification team outside the jurisdiction of the Executive Officer is excluded from this financial assessment, but must be disclosed to the Executive Officer in accordance with section 95503(e).

(3) Non-CARB verification services are excluded from categories of risk if those services are conducted in accordance with, or substantially equivalent to, section 95503, including, but not limited to, auditing services provided under the U.S. EPA RFS (QAP services, attest engagement services, third-party engineering reports), third-party certification of environmental management systems under ISO 14001, energy management systems under 50001 standards, or certification systems recognized by other governmental agencies, including the European Commission. Verification services provided under MRR or the Cap-and-Trade Regulation are also excluded from categories of risk for potential conflict of interest.

(d) *Medium Conflict of Interest.* The potential for a conflict of interest shall be deemed to be medium where the potential for a conflict of interest is not deemed to be either high or low as specified in sections 95503(b) and 95503(c). The potential for conflict of interest will also be deemed to be medium where there are any instances of personal or familial relationships between the members of the verification body and management or members of the entity required to contract for verification services.

(1) If a verification body identifies a medium potential for conflict of interest and intends to provide verification services for the entity required to contract for verification services, the verification body shall submit, in addition to the submittal requirements specified in section 95503(e), a plan to avoid, neutralize, or mitigate the potential conflict of interest situation. At a minimum, the conflict of interest mitigation plan shall include:

(A) A demonstration that any individuals with potential conflicts have been removed and insulated from the project.

(B) An explanation of any changes to the organizational structure or verification body to remove the potential conflict of interest. A demonstration that any unit with potential conflicts has been divested or moved into an independent entity or any subcontractor with potential conflicts has been removed.

(C) Any other circumstance that specifically addresses other sources for potential conflict of interest.

(2) The Executive Officer shall evaluate the conflict of interest mitigation plan and determine whether verification services may proceed pursuant to section 95503(e).

(e) *Conflict of Interest Submittal Requirements for Accredited Verification Bodies*. Verification bodies accredited by the Executive Officer to perform validation or verification services must adhere to the conflict of interest submittal, determinations, and monitoring requirements in MRR section 95133(e) through (g), except section 95133(f)(2) and (3).

Except as otherwise specifically provided:

(1) Wherever the term "reporting entity" is used, the term "entity required to contract for validation or verification services" shall be substituted;

(2) Whenever the term "emissions data report" is used, the term "applications or reports specified in section 95500 of this subarticle" shall be substituted;

(3) Whenever the term "verification services" is used, the term "verification or validation services" shall be substituted;

(4) Wherever "section 95133(a)-(d)" referenced, "section 95503(a)-(d)" shall be substituted; and

(5) When potential for a conflict of interest is deemed to be low, as specified in section 95503(c), the verification body must submit its self-assessment to the Executive Officer, except the Executive Officer authorization to perform verification services as specified in MRR sections 95133(e)(1) and 95133(f)(3) is not required prior to performing LCFS verification services.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, and 43018 Health and Safety Code; 42 U.S.C. section 7545, and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).