ATTACHMENT A

PROPOSED 15-DAY REGULATION ORDER

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PROPOSED REGULATION ORDER

The originally proposed regulatory language is shown in ~~strikethrough~~ to indicate proposed deletions from existing regulations and regular text indicates the additions originally proposed to existing regulations. New deletions and additions to the originally proposed language that are made public with the "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information" are shown in ~~double strikethrough~~ and <u>double underline format</u>, respectively. All portions that remain unchanged from the originally proposed regulation are indicated by the symbol "* * * * *" for reference.

Repeal existing sections 95480, 95480.1, 95480.2, 95480.3, 95480.4, 95480.5, 95481, 95482, 95483, 95484, 95485, 95486, 95487, 95488, 95489, and 95490, title 17, California Code of Regulations, as follows:

Note: In the interest of brevity, the sections listed above that are proposed for repeal are not shown in strikethrough, as in the original proposal. Repeal of all existing LCFS sections is nevertheless still proposed.

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LOW CARBON FUEL STANDARD

TABLE OF CONTENTS

LIST OF TABLES

PROPOSED REGULATION ORDER

Adopt new sections 95480, 95481, 95482, 95483, 95483.1, 95483.2, 95484, 95485, 95486, 95487, 95488, 95489, ~~95890,~~95491, 95492, 95493, 95494, 95495, 95496, and 95497, 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.

* * * * *

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43000.5, 43013~~ 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 95497, the definitions in Health and Safety Code sections 39010 through 39060 shall apply, except as otherwise specified in this section or sections 95482 through 95497:

* * * * *

(2) "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.

(3~~2~~) "AEZ-EF Model" means the Agro-Ecological Zone Emissions Factor model (~~February 21~~December 31, 2014), posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm and available for download at ~~http://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/aezef-model.xlsm~~ http://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/aez-ef_model_v52.xlsm, which is ~~hereby~~ incorporated herein by reference.

(43) "Aggregation 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.

(54) "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)(12).

(65) "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.

~~(6) "B100" means biodiesel meeting ASTM D6751-14 (2014) (*Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels*), which is incorporated herein by reference.~~

* * * * *

(8) "Biodiesel" means a fuel as defined in California Code of Regulations, title 4, section 4140(a).~~diesel fuel substitute produced from nonpetroleum renewable resources that meet the registration requirements for fuels and fuel additives established by the Environmental Protection Agency under section 211 of the Clean Air Act. It includes biodiesel meeting all the following:~~

~~(A) Registered as a motor vehicle fuel or fuel additive under 40 Code of Federal Regulations (CFR) part 79;~~
~~(B) A mono-alkyl ester;~~
~~(C) Meets ASTM D6751-08 (2014), *Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels,* which is incorporated herein by reference;~~
~~(D) Intended for use in engines that are designed to run on conventional diesel fuel; and~~
~~(E) Derived from nonpetroleum renewable resources.~~

(9) "Biodiesel Blend" means biodiesel blended with CARB diesel.~~a blend of biodiesel and diesel fuel containing 6 percent (B6) to 20 percent (B20) biodiesel and meeting ASTM D7467-13 (2013), *Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to B20)*, which is incorporated herein by reference.~~

~~(10) "Biofuel Production Facility" means an identifier that refers to the production facility in which the biofuel was produced.~~

(10~~1~~) "Biogas" means the raw gaseous mixture comprised primarily of methane and carbon dioxide and derived from the anaerobic decomposition of organic matter in a landfill, lagoon, or ~~artificial~~ 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.

(11~~2~~) "Bio-CNG" means biogas-derived biomethane which has been compressed to CNG. Bio-CNG has equivalent performance characteristics when compared to fossil CNG.

(12~~3~~) "Bio-LNG" means biogas-derived biomethane which has been compressed and liquefied into LNG. Bio-LNG has equivalent performance characteristics when compared to fossil LNG.

(13~~4~~) "Bio-L-CNG" means biogas-derived biomethane which has been compressed, liquefied, re-gasified, and re-compressed into L-CNG, and has performance characteristics at least equivalent to~~. Bio-L-CNG has equivalent or better performance characteristics than~~ fossil L-CNG.

(14~~5~~) "Biomass" means biogenic plant and animal material, especially agricultural or forest waste products which can be used as a source of fuel, or feedstock for the production of fuel, soil amendment, or fertilizer.~~any organic material not derived from fossil fuels, including agricultural crops, agricultural wastes and residues, waste pallets, crates, dunnage, manufacturing, construction wood wastes, landscape and right-of-way tree trimmings, mill residues that result from milling lumber, rangeland maintenance residues, biosolids, sludge derived from organic matter, and wood and wood waste from timbering operations, as defined in the "Renewable Energy Program: Overall Program Guidebook," 2nd Ed., California Energy Commission, Report No. CEC-300-2007-003-ED2-CMF, January 2008.~~

(15~~6~~) "Biomass-based diesel" means a biodiesel (mono-alkyl ester) or a renewable diesel that complies with ASTM D975-14a, (2014), *Specification for Diesel Fuel Oils*, which is incorporated herein by reference. This includes a renewable fuel derived from co-processing biomass with a petroleum feedstock.

(16~~7~~) "Biomethane" is primarily methane derived from biogas after~~the refined end product when~~ carbon dioxide and other~~the~~ impurities present in the biogas are chemically or physically separated from the ~~methane in~~

~~the~~gaseous mixture~~., resulting in a product about 99 percent methane content. This product is called biomethane.~~ Biomethane has equivalent chemical, physical, and performance characteristics as ~~fossil-based~~ methane ~~in natural~~ gas.

(1~~8~~) "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 2.0 (CA-GREET2.0-T1 or CA-GREET2.0-T2) model, (May 22, 2015 ~~December 15, 2014~~), which is incorporated by reference. A blendstock that is used directly as a transportation fuel in a vehicle is considered a finished fuel.

(1~~9~~) "Broker" is a third-party user registered in the LRT-CBTS specifically to facilitate the transfer of credits between regulated parties.

(19~~20~~) "Business Partner" refers to the counter~~-~~party in a specific transaction involving the regulated party. This can either be the buyer or seller of fuel~~, whichever applies to the specific transaction~~.

(20~~1~~) "Carbon intensity" means the amount of life cycle greenhouse gas emissions, per unit of fuel energy~~ of fuel delivered~~, expressed in grams of carbon dioxide equivalent per megajoule (gCO_2e/MJ).

(21~~2~~) "Compressed Natural Gas (CNG)" means natural gas that has been compressed to a pressure greater than ambient pressure.

(22~~3~~) "Credit Facilitator (CF)" is a ~~user account role in the~~ LRT-CBTS user assigned by a~~for~~ regulated party~~ies~~ to ~~assign to those personnel that~~ initiate and complete LCFS credit transfers on behalf of their registered organization.

(23~~4~~) "Credit Generator" means a fuel provider for an alternative fuel listed in section 95482(b) who may generate LCFS credits for that fuel by electing to opt into the LCFS pursuant to section 95483.1 and who meets~~meeting~~ the requirements of this regulation.

(24~~5~~) "Credits" and "deficits" mean the measures used for determining a regulated party's compliance with the average carbon intensity requirements in section~~s~~ 95484. Credits and deficits are denominated in units of metric tons of carbon dioxide equivalent (CO_2e), and are calculated pursuant to section 95486(b).

(25~~6~~) "Day" means a calendar day unless otherwise specified as a business day.

(26~~7~~) "Diesel Fuel" (also called conventional diesel fuel) has the same meaning as specified in California Code of Regulations, title 13, section 2281(b).

(27~~8~~) "Diesel Fuel Blend" means a blend of diesel fuel and biodiesel containing no more than 5 percent (B5) biodiesel by weight and meeting ASTM D975-14a, (2014), *Standard Specification for Diesel Fuel Oils*, which is incorporated herein by reference.

(28~~9~~) "E100," also known as "Denatured Fuel Ethanol," means nominally anhydrous ethyl alcohol meeting ASTM D4806-14 (2014), *Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel*, which is incorporated herein by reference.

(29~~30~~) "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; or
(C) an Electrical Cooperative (COOP) as defined in Public Utilities Code section 2776.

(30~~1~~) "Electric Vehicle (EV)," for purposes of this regulation, refers to Battery Electric Vehicles (BEVs) and Plug-In Hybrid Electric Vehicles (PHEVs).

(31~~2~~) "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. 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.

(32~~3~~) "Executive Officer" means the Executive Officer of the Air Resources Board, or his or her designee.

(33~~4~~) "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.

(34~~5~~) "Finished fuel" means a fuel that is used directly in a vehicle for transportation purposes without requiring additional chemical or physical processing.

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

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

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

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

(3940) "FPC Obligated Amount" means the amount of transportation fuel or blendstock (e.g., gal, scf, kWh, kg) associated with a Fuel Pathway Code (FPC) for which a regulated party must meet the average carbon intensity requirements set forth in Tables 1 and 2 of section 95484.

(401) "Fuel Pathway Code" means the identifier in the LRT-CBTS that applies to a specific fuel pathway approved pursuant to section 95488in the Lookup Table, as determined pursuant to section 95488(a).

(412) "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, through which the regulated party reasonably expects the fuel to be 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.

(423) "GTAP" or "GTAP Model" means the Global Trade Analysis Project Model (December 2014), which is hereby incorporated herein by reference, and is a software package comprised of RunGTAP (December 2014), a visual interface for use with the GTAP databases (posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm in December 2014 and available for download at https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=4577 https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=4347);

(434) "Heavy-Duty Vehicle" means a heavy-duty vehicle that is rated at 14,001 or more pounds gross vehicle weight rating (GVWR).

(44~~5~~) "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.

(45~~6~~) "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.

(46~~7~~) "Import" means to bring a product from outside California into California.

(47~~8~~) "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~~equipment~~ entered California. For purposes of this definition, "transportation equipment" includes, but is not limited to, rail cars, cargo tanker trucks, and pipelines.

(48~~9~~) "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(a).

(49~~52~~) "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.

(50~~1~~) "Light-Duty Vehicle" and "Medium-Duty Vehicle" means 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.

(51~~0~~) "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.

(52~~3~~) "Liquefied Natural Gas (LNG)" means natural gas that has been liquefied.

(53~~4~~) "Liquefied petroleum gas (LPG or propane)" has the same meaning as defined in Vehicle Code section 380.

(54~~5~~) "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(e)(1)(A).
(B) Total annual energy use equal to or less than 5 million MMBtu as calculated in section 95489(e)(1)(B).

~~(56) "LRT-CBTS-Reporting-Deadlines" means the quarterly and annual reporting dates specified in section 95491(a)(1).~~

(55~~7~~) "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(e)(1)(A).

(56~~8~~) "Motor vehicle" has the same meaning as defined in section 415 of the Vehicle Code.

(57~~9~~) "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, a plug-in hybrid hydrogen internal combustion engine vehicle (ICEV) uses both electricity and hydrogen as the fuel source and can be "refueled" using two separately distinct fueling ports.

~~(60) "Multimedia evaluation" has the same meaning as specified in H&S section 43830.8(b) and (c).~~

(58~~61~~) "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.

(59~~62~~) "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.

(60~~3~~) "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 ARB's In-Use Off-Road Regulation, Code of Regulations, title 13, section 2449, is not covered under this definition.

(614) "OPGEE" or "OPGEE Model" means the Oil Production Greenhouse gas Emissions Estimator Version 1.1 Draft ~~D~~E (~~October 1, 2014~~April 6, 2015) posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm, which is hereby incorporated by reference.

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

(636) "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.

(647) "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.

(658) "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.

(669) "Producer" means, with respect to any fuel, the entity that made or prepared the fuel. This definition includes "out-of-state" producers where the production facility is out of the State of California and the entity has opted into the LCFS ~~production as long as~~ pursuant to section 95483.1.

(670) "Product Transfer Document (PTD)" means a document that authenticates the transfer of ownership of fuel from a regulated party to the recipient of the fuel. A PTD is created by a regulated party to contain information collectively supplied by other fuel transaction documents, including bills of lading, invoices, contracts, meter tickets, rail inventory sheets, Renewable Fuels Standard (RFS2) product transfer documents, etc."

(6871) "Production facility" means, with respect to any ~~liquid~~ fuel (other than CNG, LNG and L-CNG), a facility at which the fuel is produced. "Production facility" means, with respect to natural gas (CNG, LNG, L-CNG, or biomethane), a facility at which fuel is converted, compressed, liquefied, refined, treated, or otherwise processed into CNG, LNG, L-CNG, biomethane, or biomethane-natural gas blend that is ready for transportation use in a vehicle without further physical or chemical processing.

(6972) "Public access fueling facility" means a fueling facility that is not a private-access fueling dispenser.

(703) "Regulated party" means a person who, pursuant to section 95483 or 95483.1, must meet the average carbon intensity requirements in section 95484.

(714) "Renewable Hydrocarbon dDiesel" means a diesel fuel that is produced from nonpetroleum renewable resources but is not a mono-alkyl ester and which is registered as a motor vehicle or fuel additive under 40 Code of Federal Regulations part 79.motor vehicle fuel or fuel additive that is all the following:

(A) Registered as a motor vehicle fuel or fuel additive under 40 CFR part 79;
(B) Not a mono-alkyl ester;
(C) Intended for use in engines that are designed to run on conventional diesel fuel; and
(D) Derived from nonpetroleum renewable resources.

(725) "Reporting Party" means any person who, pursuant to section 95483 or 95483.1 is the initial regulated party holding the compliance obligation, and any person to whom the compliance obligation has been transferred directly or indirectly from the initial upstream regulated party.

(736) "Single fuel vehicle" means a vehicle that uses a single external source of fuel for its operation. The fuel can be a pure fuel, such as gasoline, or a blended fuel, such as E85 or a diesel fuel containing biomass-based diesel.

(747) "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.

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

(769) "Transaction Quantity" means the amount of fuel reported in a transaction. A Transaction Quantity may be reported in gallons, KWh, scf, or other appropriate units.

(7780) "Transaction Type" means the nature of a fuel-based transaction as defined below:

(A) "Production for use in California" means the transportation fuel was produced at a facility in California for use in Californiadesignated for

~~use only in California at production, and acquired a compliance obligation under LCFS regardless of production inside or outside of California~~;

(B) "Production for Import" means the transportation fuel was produced outside of California and imported into California for use in transportation. This transaction type is to be reported by out-of-state producers who claim the initial LCFS obligation for fuel imported into California.

(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. This transaction type is to be reported by non-producers who claim the initial LCFS obligation for out-of-state fuel imported into California.

(D~~B~~) "Purchased with Obligation" means the transportation fuel was purchased with the compliance obligation from a reporting party;

(E~~C~~) "Purchased without Obligation" means the transportation fuel was purchased without the compliance obligation from a reporting party;

(F~~D~~) "Sold with Obligation" means the transportation fuel was sold with the compliance obligation by a reporting party;

(G~~E~~) "Sold without Obligation" means the transportation fuel was sold without the compliance obligation by a reporting party;

(H~~F~~) "Export" means a transportation fuel was reported with compliance obligation under the LCFS but was later exported outside of California;

(I~~G~~) "Loss of Inventory" means the fuel entered the California fuel pool but was not used due to volume loss;

(J~~H~~) "Gain of Inventory" means the fuel entered the California fuel pool due to a volume gain;

(K~~I~~) "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~~J~~) "EV Charging" means providing electricity to recharge EVs~~plug-in electric vehicles, including battery electric vehicles and plug-in hybrid electric vehicles~~;

(M~~K~~) "Fixed Guideway Charging" means fueling light rail or heavy rail, exclusive right-of-way bus operations, or trolley coaches with electricity;

(N~~L~~) "Forklift Fueling~~Charging~~" means providing fuel (electricity, hydrogen, etc.) to~~electricity to recharge electric~~ forklifts;

(O~~M~~) "NGV Fueling" means the dispensing of natural gas at a fueling station designed for fueling natural gas vehicles.

(78~~1~~) "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.

(79~~82~~) "Transportation fuel" means any fuel used or intended for use as a motor vehicle fuel or for transportation purposes in a non-vehicular source.

(b) *Acronyms.* For the purposes of sections 95480 through 95497, the following acronyms apply.

~~(1)~~ "AEZ-EF" means Agro-Ecological Zone Emissions Factor model.
~~(2)~~ "ASTM" means ASTM International (formerly American Society for Testing and Materials).
~~(3)~~ "BEV" means battery electric vehicles.
~~(4)~~ "CA-GREET" means California-modified Greenhouse Gases, Regulated Emissions, and Energy use in Transportation model.
~~(5)~~ "CARBOB" means California reformulated gasoline blendstock for oxygenate blending.
~~(6)~~ "CaRFG" means California reformulated gasoline.
~~(7)~~ "CEC" means California Energy Commission.
~~(8)~~ "CFR" means ~~code of federal regulations~~ Code of Federal Regulations.
~~(9)~~ "CI" means carbon intensity.
~~(10)~~ "CNG" means compressed natural gas.
~~(11)~~ "EER" means energy economy ratio.
~~(12)~~ "EV" means electric vehicle.
~~(13)~~ "FCV" means fuel cell vehicles.
~~(14) "FFV" means flexible fuel vehicles.~~
~~(15) "FOA" means Fuel Obligated Amount.~~
~~(16) "FPCOA" means FPC Obligated Amount.~~
~~(17)~~ "gCO_2e/MJ" means grams of carbon dioxide equivalent per megajoule.
~~(18) "GREET" means the Greenhouse Gases, Regulated Emissions, and Energy use in Transportation model.~~
~~(19)~~ "GTAP" means the Global Trade Analysis Project model.
~~(20)~~ "GVWR" means gross vehicle weight rating.
~~(21)~~ "HDV" means heavy-duty vehicles.
~~(22)~~ "HDV-CIE" means a heavy-duty vehicle compression-ignition engine.
~~(23)~~ "HDV-SIE" means a heavy-duty vehicle spark-ignition engine.
~~(24)~~ "HEV" means hybrid electric vehicle.
~~(25)~~ "ICEV" means internal combustion engine vehicle.
~~(26)~~ "~~I~~iLUC" means indirect land use change.
~~(27)~~ "LCFS" means Low Carbon Fuel Standard.
~~(28)~~ "LDV" means light-duty vehicles.
~~(29) "~~L-CNG" means liquefied compressed natural gas.
~~(30)~~ "LNG" means liquefied natural gas.
~~(31)~~ "LPG" means liquefied petroleum gas.
~~(32)~~ "LRT-CBTS" means LCFS Reporting Tool and Credit Bank & Transfer System.~~"~~
~~(33)~~ "MCON" means marketable crude oil name.
(~~34~~) "MDV" means medium-duty vehicles.

~~(35)~~ "MMBtu" means million British Thermal Units.
~~(36)~~ "MT" means metric tons of carbon dioxide equivalent.
~~(37)~~ "NGV" means a natural gas vehicle.
~~(38)~~ "OPGEE" means Oil Production Greenhouse gas Emissions Estimator Model
~~(39)~~ "PHEV" means plug-in hybrid vehicles.
~~(40)~~ "TEOR" means thermally enhanced oil recovery.
~~(41)~~ "ULSD" means California ultra-low sulfur diesel.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43000.5, 43013~~ 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.

* * * * *

~~(f) *Severability*. Each part of this subsection shall be deemed severable, and in the event that any part of this subsection is held to be invalid, the remainder of this subsection shall continue in full force and effect.~~

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, ~~43000.5, 43013~~ 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. Regulated Parties.

Except as provided in this section, the LCFS applies to any person who, as a regulated party defined in section 95481 and specified in section 95483(a), is responsible for a transportation fuel in a calendar year. The purpose of this part is to establish the criteria by which ~~a~~ regulated party status is determined. The regulated party is initially established for each type of transportation fuel, but this part provides for the transfer of regulated party status and the associated compliance obligations by agreement, notification, or other means, as specified below.

(a) *Regulated Parties for Gasoline and Diesel*.

(1) *Designation of Producers and Importers as Regulated Parties*.

* * * * *

(B) *All Other Gasoline.* For any other gasoline that does not fall within section 95483(a)(1)(A) the regulated party is the producer or importer of the gasoline. Where additional oxygenate is added to gasoline, the regulated party with respect to the oxygenate is initially the producer or importer of the oxygenate.

* * * * *

(2) *Effect of Transfer of CARBOB, Diesel Fuel, or Diesel Fuel Blends by Regulated Party.*

~~(A) *Threshold Determination Whether Recipient of CARBOB, Diesel Fuel or Diesel Fuel Blends is a Producer or Importer.* Whenever a person who is the regulated party for CARBOB, Diesel Fuel or Diesel Fuel Blends transfers ownership of the CARBOB, Diesel Fuel or Diesel Fuel Blends, the recipient must notify the transferor whether the recipient is a producer or importer for purposes of this section.~~

~~(B) *Producer or Importer Acquiring CARBOB, Diesel Fuel, or Diesel Fuel Blends Becomes the Regulated Party Unless Specified Conditions are Met.* Except as provided for in section 95483(a)(2)(C), when a person who is the regulated party transfers ownership of the CARBOB, Diesel Fuel or Diesel Fuel Blends to a producer or importer, the recipient of ownership of the CARBOB, Diesel Fuel or Diesel Fuel Blends (i.e., the transferee) becomes the regulated party for it. The transferor must provide the recipient a product transfer document that prominently states the information specified in section 95491(c)(1) and the transferor and recipient must meet the requirements specified in the subsection below:~~

~~For purposes of section 95485(a), except as provided in subsection (B)3. of this provision:~~

~~1. The transferor must include the $Deficits^{YD}_{Incremental2026}$, as defined and set forth in section 95489(b), in the transferor's annual credits and deficits balance calculation set forth in section 95485(b)(2); and~~

~~2. The recipient must include $Deficits^{YD}_{Base}$, as defined and set forth in section 95489(b), in the recipient's annual credits and deficits balance calculation set forth in section 95485(b)(2).~~

3. Subsections (B)1. and (B)2. above notwithstanding, the transferor and recipient of CARBOB, Diesel Fuel, or Diesel Fuel Blends 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).

(C) *Transfer of CARBOB, Diesel Fuel, or Diesel Fuel Blend to a Producer or Importer and Retaining Compliance Obligation.* Section 95483(a)(2)(B) notwithstanding, a regulated party transferring ownership of CARBOB, Diesel Fuel or Diesel Fuel Blend to a producer or importer may elect to remain the regulated party and retain the LCFS compliance obligation for the transferred CARBOB, Diesel Fuel or Diesel Fuel Blend by providing the recipient at the time of transfer with a product transfer document that prominently states the information specified in section 95491(c)(1).

(D) *If Recipient is not a Producer or Importer, Regulated Party Transferring CARBOB, Diesel Fuel, or Diesel Fuel Blends Remains Regulated Party Unless Specified Conditions are Met.* When a person who is the regulated party for CARBOB, Diesel Fuel or Diesel Fuel Blends transfers ownership of the CARBOB, Diesel Fuel or Diesel Fuel Blends to a person who is not a producer or importer, the transferor remains the regulated party unless the conditions of section 95484(a)(2)(E) are met.

(E) *Conditions under which a Non-Producer and Non-Importer Acquiring Ownership of CARBOB, Diesel Fuel, or Diesel Fuel Blends Becomes the Regulated Party.* A person, who is neither a producer nor an importer and who acquires ownership of CARBOB from the regulated party, becomes the regulated party for the CARBOB if, by the time ownership is transferred, the two parties agree by written contract that the person acquiring ownership accepts the LCFS compliance obligation as the regulated party. A person, who is neither a producer nor an importer and who acquires ownership of Diesel Fuel or Diesel Fuel Blends from the regulated party above the rack, may become the regulated party for the Diesel Fuel or Diesel Fuel Blends if, by the time ownership is transferred, the two parties agree by written contract that the person acquiring ownership accepts the LCFS compliance obligation as the regulated party. For the transfer of regulated party obligations to be effective, the transferor must also provide the recipient a product transfer document that prominently states the information specified in section 95491(c), and the transferor and

recipient must meet the requirements specified in the subsection below:

For purposes of section 95485(a), except as provided in subsection 3. of this provision:

(A)~~1.~~ The transferor must include the $Deficits^{XD}_{Incremental20XX}$, as defined and set forth in section 95489(b), in the transferor's annual credits and deficits balance calculation set forth in section 95485(b)(2); and

(B)~~2.~~ The recipient must include $Deficits^{XD}_{Base}$, as defined and set forth in section 95489(b), in the recipient's annual credits and deficits balance calculation set forth in section 95485(b)(2).

(C)~~3.~~ Subsections (A)~~E)1.~~ and (B)~~E)2.~~ above notwithstanding, the transferor and recipient of CARBOB, Diesel Fuel or Diesel Fuel Blends 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 ~~i~~in the annual credits and deficits balance calculation set forth in section 95485(b)(2).

(3) *Effect of Transfer by Regulated Party of Oxygenate or Biomass-Based Diesel to be Blended with CARBOB, Gasoline, Diesel Fuel, or Diesel Fuel Blends.*

(A) *Person Acquiring the Oxygenate or Biomass-Based Diesel Becomes the Regulated Party Unless Specified Conditions are Met.* Except as provided in section 95483(a)(3)(B), when a person who is the regulated party for oxygenate or biomass-based diesel to be blended with CARBOB, Gasoline, Diesel Fuel or Diesel Fuel Blends transfers ownership of the oxygenate or biomass-based diesel before it has been blended with CARBOB, Gasoline, Diesel Fuel or Diesel Fuel Blends, the new owner~~recipient of ownership~~ of the oxygenate or biomass-based diesel (i.e., the transferee) becomes the regulated party for it. The transferor must provide the recipient a product transfer document that prominently states the information specified in section 95491(c)(1).

(B) *Transfer of Oxygenate or Biomass-Based Diesel and Retaining Compliance Obligation.* Section 95483(a)(3)(A) notwithstanding, a regulated party transferring ownership of oxygenate or Biomass-Based Diesel may elect to remain the regulated party and retain the LCFS compliance obligation for the transferred

oxygenate or Biomass-Based Diesel by providing the recipient at the time of transfer with a product transfer document that prominently states the information specified in 95491(c)(1).

* * * * *

~~(5) *Effect of Transfer by a Regulated Party of Oxygenate to be Blended with Gasoline.* Where oxygenate is added to gasoline, the regulated party with respect to the oxygenate is initially the producer or importer of the oxygenate. Transfers of the oxygenate are subject to section 95483(a)(1)(C)~~.

* * * * *

(c) *Regulated Parties for Blends of Liquid Alternative Fuels and Gasoline or Diesel Fuel.*

* * * * *

(2) *Effect of Transfer of a Blend of Liquid Alternative Fuel and Gasoline or Diesel Fuel and Compliance Obligation.* Except as provided for in section 95483(c)(3) ~~95483(a)(4)(C)~~, on each occasion that a person transfers ownership of fuel that falls within section 95483(c) ~~95483(a)(4)~~ ("alternative liquid fuel blend") before it has been transferred from its final distribution facility, the recipient of ownership of such an alternative liquid fuel blend (i.e., the transferee) becomes the regulated party for that alternative liquid fuel blend. The transferor shall provide the recipient a product transfer document that prominently states the information specified in section 95491(c)(1).

(3) *Effect of Transfer of a Blend of Liquid Alternative Fuel and Gasoline or Diesel Fuel and Retaining Compliance Obligation.* Section 95483(c)(2) ~~95483(a)(4)(B)~~ notwithstanding, the transferor may elect to remain the regulated party and retain the LCFS compliance obligation for the transferred alternative liquid fuel blend by written contract with the recipient. The transferor shall provide the recipient with a product transfer document that prominently states the information specified in section 95491(c)(1).

* * * * *

(e) *Regulated Parties for Electricity.* For electricity used as a transportation fuel, the party who is eligible to generate credits is determined as specified below:

(1) For on-road transportation fuel supplied through electric vehicle (EV) charging in a single- or multi-family residence, the Electrical Distribution

Utility is eligible to generate credits in its~~their~~ service territory. To receive such credits,~~credit for electricity supplied as a transportation fuel under any provision in this section,~~ the Electrical Distribution Utility must:

(A) Use all credit proceeds to benefit current or future EV customers;~~.~~

(B) Educate the public on the benefits of EV transportation (including environmental benefits and costs of EV charging, or total cost of ownership, as compared to gasoline);~~. These efforts may include, but are not limited to:~~

~~1. public meetings~~
~~2. EV dealership flyers~~
~~3. utility customer bill inserts~~
~~4. advertising~~
~~5. web page content~~

(C) Provide rate options that encourage off-peak charging and minimize adverse impacts to the electrical grid; and~~.~~

(D) Include in annual compliance reporting the following supplemental information: an itemized summary of efforts to meet requirements ~~subsections~~ (A) through (C) above and costs associated with meeting the requirements. ~~ARB will post the supplemental information for public review by May 31st of each year.~~For investor owned utilities, this requirement may be satisfied by supplying a 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.

(2) For on-road transportation fuel supplied through public access EV charging, the Electrical Distribution Utility is eligible to generate credits in its service territory. Upon submittal to and approval by the Executive Officer of its written request to opt in and generate the credits under this provision, the third-party non-utility Electric Vehicle Service Provider (EVSP) ~~or Electrical Distribution Utility~~ that has installed the equipment, or had an agent install the equipment, and who has a contract with the property owner or lessee where the equipment is located to maintain or otherwise service the charging equipment, is eligible to generate the credits~~. If the EVSP is not reporting for a specific volume of fuel, or has not fully complied with the requirements of this subarticle, the Electrical Distribution Utility is eligible to generate credits~~ for the electricity ~~with Executive Officer approval~~. To receive credit for transportation fuel supplied through public access EV charging equipment, ~~the following requirements apply:~~the EVSP or Electrical Distribution Utility must meet the requirements set forth in section 95483(e)(1)(B) through (D).

~~(A) Use all credit proceeds to benefit current or future EV customers~~.

~~(B) Educate the public on the benefits of EV transportation (including environmental benefits and costs of EV charging, or total cost of ownership, as compared to gasoline). These efforts may include, but are not limited to:~~

~~1. public meetings~~
~~2. EV dealership flyers~~
~~3. utility customer bill inserts~~
~~4. advertising~~
~~5. web page content~~

~~(C) Provide rate options that encourage off-peak charging and minimize adverse impacts to the electrical grid.~~

~~(D) Include in annual compliance reporting the following supplemental information: an itemized summary of efforts to meet requirements subsections (A) through (C) above and costs associated with meeting the requirements. ARB will post the supplemental information for public review by May 31~~st ~~of each year.~~

(3) EV Fleets

(A) For on-road transportation fuel supplied to a fleet of EVs, ~~a person operating a fleet (fleet operator) is eligible to generate credits.~~the Electrical Distribution Utility is eligible to generate credits in its service territory, and must meet the requirements set forth in section 95483(e)(1)(B) through (D). Upon submittal to and approval by the Executive Officer of the fleet operator's written request to opt in and generate credits associated with a specified fleet.~~If the fleet operator is not generating credits for a specific volume of fuel, or has not otherwise fully complied with the requirements of this subsection,~~ the ~~Electrical Distribution Utility~~fleet operator is eligible to generate the credits for the electricity ~~with Executive Officer approval~~. To receive credit for transportation fuel supplied to an EV fleet, an accounting of the number of EVs in the fleet must be included as supplemental information in annual compliance reporting.

(B) For on-road transportation fuel supplied ~~to a fleet~~ through the use of a battery switch station, the ~~station owner is eligible generate credits~~Electrical Distribution Utility is eligible to generate credits in its service territory, and must meet the requirements set forth in section 95483(e)(1)(B) through (D). Upon submittal to and

approval by the Executive Officer of the station owner's written request to opt in and generate credits associated with a specific location or locations, the station owner ~~If the station owner is not generating credits for a specific amount of fuel, or has not otherwise fully complied with the requirements of this subsection, the Electrical Distribution Utility~~ is eligible to generate the credits for the electricity ~~with Executive Officer approval~~.

(4) For on-road transportation fuel supplied through private access EV charging equipment at a business or workplace, the ~~business owner is eligible to generate credits.~~Electrical Distribution Utility is eligible to generate credits in its service territory, and must meet the requirements set forth in section 95483(e)(1)(B) through (D). Upon submittal to and approval by the Executive Officer of the site host's written request to opt in and generate credits associated with a specific location or locations,~~If the business owner is not generating credits for a specific volume of fuel, or has not fully complied with the requirements of this subsection,~~ the ~~Electrical Distribution Utility~~site host is eligible to generate the credits for the electricity ~~with Executive Officer approval~~. To receive credit for transportation fuel supplied through private access EV charging equipment at a business or workplace, the following requirements apply to a site host that opts in:

(A) Educate employees on the benefits of EV transportation (including environmental benefits and costs of EV charging, or total cost of ownership, as compared to gasoline) through outreach efforts directed to all employees, such as meetings, flyers, and preferred parking; and~~that may include, but are not limited to:~~

~~1. employee meetings~~
~~2. public meetings~~
~~3. EV dealership flyers~~
~~4. employee flyers~~
~~5. web page content~~
~~6. preferred parking~~

(B) Include in annual compliance reporting the following supplemental information: a summary of efforts to meet the requirement in 95483(e)(4)(A), above,~~requirement 1~~ and an accounting of the number of EVs known to be charging at the business.

(5) In the event that there is measured on-road electricity as a transportation fuel that is not covered in subsections ~~(B) through (D)~~95483(e)(1) through (4) above, the Electrical Distribution Utility is eligible to generate credits for the electricity with Executive Officer approval, and must meet the requirements set forth in section 95483(e)(1)(B) through (D).

(6) For transportation fuel supplied to a fixed guideway system, the transit agency operating the system is eligible to generate credits for electricity used to propel the system. Upon submittal to and approval by the Executive Officer of the transit agency's written acknowledgment that it will not opt in and generate credits under this provision, ~~If the transit agency is not generating credits for a specific volume of fuel,~~ the Electrical Distribution Utility is eligible to generate the credits ~~report~~ for the electricity ~~with written consent of the transit agency with Executive Officer approval~~, and must meet the requirements set forth in section 95483(e)(1)(B) through (D).

(7) For transportation fuel supplied to electric forklifts, the Electrical Distribution Utility is eligible to generate credits for the electricity, and must meet the requirements set forth in section 95483(e)(1)(B) through (D).

(f) *Regulated Parties for Hydrogen or a Hydrogen Blend.*

(1) *Designation of Regulated Party at Time Finished Fuel is Created.* For a volume of finished fuel consisting of hydrogen or a blend of hydrogen and another fuel ("finished hydrogen fuel"), the person who owns the finished hydrogen fuel at the time the finished fuel is created is eligible to generate credits. A hydrogen blend is considered to be a finished hydrogen fuel at completion of blending.

* * * * *

(3) For hydrogen fuel cell forklifts, the forklifts fleet owner is eligible to generate credits for the hydrogen.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, ~~43000.5, 43013~~ 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 Parties.

* * * * *

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43000.5, 43013~~ 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. Establishing a LCFS Reporting Tool Account

* * * * *

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, ~~43000.5, 43013~~ 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. Average Carbon Intensity Requirements.

* * * * *

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

Table 1. LCFS Compliance Schedule for 2011 to 2020 for Gasoline and Fuels Used as a Substitute for Gasoline.~~*~~

Year	***Average Carbon Intensity (gCO_2e/MJ)***
2010	Reporting Only
2011~~*~~	95.61
2012	95.37
2013~~**~~	97.96
2014	97.96
2015	97.96
2016~~***~~	~~97.20~~96.50
2017	~~95.71~~95.02
2018	~~94.22~~93.55
2019	~~91.74~~91.08
2020 and subsequent years	~~89.26~~88.62

* The average carbon intensity requirements 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 average carbon intensity requirements for years 2013 to 2015~~2020~~ 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.
*** In 2015 the LCFS was readopted and the CI modeling updated. The average carbon intensity requirements for years 2016 to 2020 reflect reductions from revised base year (2010) CI values for CaRFG (98.47).

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

Table 2. LCFS Compliance Schedule for 2011 to 2020 for Diesel Fuel and Fuels Used as a Substitute for Diesel Fuel.~~~~**

Year	***Average Carbon Intensity (gCO_2e/MJ)***
2010	Reporting Only
2011*	94.47
2012	94.24
2013**	97.05
2014	97.05
2015	97.05
2016***	~~100.76~~99.97
2017	~~99.22~~98.44
2018	~~97.68~~96.91
2019	~~95.11~~94.36
2020 and subsequent years	~~92.54~~91.81

~~*~~ The average carbon intensity requirements 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 average carbon intensity requirements for years 2013 to 2015~~2020~~ 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.
*** In 2015 the LCFS was readopted and the CI modeling updated. The average carbon intensity requirements for years 2016 to 2020 reflect reductions from revised base year (2010) CI values for ULSD (102.01).

* * * * *

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, ~~43000.5, 43013~~ 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.

* * * * *

(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.* A regulated party must calculate the credit balance at the end of a compliance period as follows:

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

$$CreditBalance = \left(Credits^{Gen} + Credits^{Acquired} + Credits^{CarriedOver}\right) - \left(Credits^{Retired} + Credits^{Sold} + Credits^{OnHold} + Credits^{Exported}\right)$$

where:

$Deficits^{Generated}$ are the ~~total~~ deficits generated pursuant to sections 95486 and 95489 ~~for~~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);

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

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

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

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

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

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

$Credits^{Exported}$ are the ~~total~~ credits exported to programs outside the LCFS in the current compliance period.

(c) *Credit Clearance Market.*

(1) If a regulated party does not~~cannot~~ 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.

* * * * *

(B) *If the Credit Clearance Market ~~O~~occurs*, a regulated party that fails to comply with section 95485(a) is nevertheless in compliance if the party:

* * * * *

(C) *If no Credit Clearance Market occurs*, the Executive Officer will record any party's unmet compliance obligation in that party's Accumulated Deficits account, and the regulated party will be deemed in compliance for that year, provided that it retires that Accumulated Deficit balance, with interest, 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~~A~~ regulated party subject to section 95485(c)(1) must acquire credits pledged into the Credit Clearance Market ~~during June or July of the year subsequent to the compliance year in question,~~ to be retired toward compliance in the previous compliance year. Credits acquired for this purpose are defined as "Clearance Market" credits.

* * * * *

(C) *Applicability.* To qualify for compliance via the Credit Clearance Market, the regulated party must meet both of the following conditions:

1. The regulated party must have~~first~~ retired for compliance all of the credits ~~currently~~ in its possession; and

* * * * *

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

* * * * *

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

* * * * *

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

* * * * *

5. Regulated 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 regulated party 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.

* * * * *

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

* * * * *

(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.

* * * * *

(5) *Rules Governing Accumulated Deficits.*

(A) *Compound Interest on Accumulated Deficits*. Regulated Parties with an Accumulated Deficit will be charged interest to be applied annually to all deficits in a regulated party's Accumulated Deficit account. Interest will be applied in terms of additional deficits that must be retired pursuant to section 95485(c)(1)(B), above, at a rate of 5 percent annually, applied on each May 1st ~~January 1st, 366 days after the pertinent compliance year ended~~.

* * * * *

(C) *Restrictions on the Repayment of Accumulated Deficits.* Regulated Parties may repay unmet deficits as part of a subsequent annual report. However, no repayment of any accumulated deficits is allowed unless the regulated party meets 100 percent of its current compliance obligation.

(D) *Prohibitions of Credit Transfers.* Regulated parties that have an Accumulated Deficit obligation cannot transfer or sell credits to another regulated party.

(d) *Limitations on the Use of Credits produced pursuant to sections* 95489*(f) and (g) (Related to Credits for the Refinery Investment Credit and the Renewable Hydrogen Refinery Credit).*

(1) A regulated party may use credits created pursuant to section 95489(f) to meet no more than 20 percent of its annual obligation.

(2) A regulated party may use credits created pursuant to section 95849(g) to meet no more than 10 percent of its annual obligation.

(3) Use of credits created pursuant to sections 95489(f) and (g) to retire deficits incurred pursuant to section 95489(c) shall not count against the limitations established in sections 95485(d)(1) and (2).

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, ~~43000.5, 43013~~ 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.*

* * * * *

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

(A) *Extended Credit Acquisition Period*. A regulated party may acquire, via purchase or transfer, additional credits between January 1st and March 31st ("extended period") to be used for meeting the compliance obligation of the year immediately prior to the extended period. Credits acquired for this purpose are defined as "carryback" credits. All carryback credit transfers must be initiated in the LRT-CBTS by March 31st and completed by ~~April 15th~~ the buyer within 10 days as specified in section 95487(c)(1)(C)1. 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 additional credit was acquired during the extended period;~~, and~~

2. The additional credit was generated in a compliance year prior to the extended period;~~.~~

3. A regulated party electing to use carryback credits must identify the number and source 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 additional credits were obtained; and~~.~~

4. A regulated party 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 extended period that are eligible to be used as carry back credits.

(b) *Calculation of Credits and Deficits Generated.* The amount of credits and deficits generated in a compliance period for an LCFS fuel will be calculated within the LRT-CBTS using the methods specified in sections 95486 and 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 must be in energy units of megajoules (MJ).

Fuel quantities denominated in other units, such as those shown in Table 3, must be converted to MJ in the LRT-CBTS by multiplying by the corresponding energy density[1]:

Table 3. Energy Densities of 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)
Pure Methane (ft^3)	1.02 (MJ/ft^3)
Natural Gas (ft^3)~~CNG (scf)~~	1.04 (MJ/ft^3)~~0.98 (MJ/scf)~~
LNG (gal)	78.83 (MJ/gal)
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)

* * * * *

(D) For Fixed Guideway Systems and Forklifts:

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

where:

[1] Energy density factors are based on the lower heating values of fuels in CA-GREET 2.0 using BTU to MJ conversion of 1055 J/Btu.

E_i is the energy of the fuel used to propel fixed guideway systems electric and hydrogen fuel cell forklifts. For fixed guideway system expansion beyond 2010, the formula for displaced energy in section 95486(b)(3)(C) may be used with Executive Officer approval.

Table 4. 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)***	
Fuel/Vehicle Combination	***EER Values Relative to Gasoline***	***Fuel/Vehicle Combination***	***EER Values Relative to Diesel***
Gasoline (incl. E6 and E10) or E85 (and other ethanol blends)	1.0	Diesel fuel or Biomass-based diesel blends	1.0
CNG/ICEV	1.0	CNG or LNG (Spark-Ignition Engines) CNG or LNG (Compression-Ignition Engines)	0.9 1.0
Electricity/BEV, or PHEV	3.4	Electricity/BEV, or PHEV* Truck Electricity/BEV or PHEV* Bus Electricity/Fixed Guideway, Heavy Rail Electricity/Fixed Guideway, Light Rail Electricity/Trolley Bus, Cable Car, Street Car Electricity Forklifts	2.7 4.2 4.6 3.3 3.1 3.8
H2/FCV	2.5	H2/FCV H2 Fuel Cell Forklifts	1.9 2.1

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

(c) *Credit Generation Frequency.* Beginning 2011 and every year afterwards, a regulated party may generate credits quarterly after ~~data are reconciled with its business partner.~~ the quarterly report has been submitted in the LRT. Regulated parties shall reconcile their data with their business partners before submission.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, ~~43000.5, 43013~~ 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).

§ 95487. Credit Transactions.

* * * * *

(b) *Mandatory Retirement of Credits for the Purpose of Compliance.*

(1) At the end of a compliance period, a regulated party that possesses credits and has also incurred deficits must retire a sufficient number of credits so that:

* * * * *

(B) If the total number of credits is less than the total number of deficits, the regulated party must retire all credits within its possession.~~, and~~

~~(C) For a regulated party that has not retired sufficient credits to meet 100 percent of its compliance obligation at the end of a compliance year, the LRT-CBTS will calculate the ratio of all credits retired to the deficits for the annual compliance period as specified in section 95485(a).~~

* * * * *

(c) *Credit Transfers between Parties.*

(1) A regulated party who wishes to sell or transfer credits ("the Seller") and a regulated party who 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(c)(1)(B) and (C)~~ within a total of 20 business days~~.

* * * * *

(B) *Credit Seller Requirements.* When a credit transfer agreement has been reached, within 10 business days the Seller must initiate the documentation by completing and posting for the Buyer's review an online Credit Transfer Form (CTF) provided in the LRT-CBTS. The CTF shall contain the following fields:

1. The date on which the Buyer and Seller reached agreement;

2. Names of the Seller and Buyer Companies as registered in the LRT-CBTS;

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

4. First and Last Name of the person who performed the transaction on behalf of the Seller Company;

5. Contact information of the person who performed the transaction on behalf of the Seller Company;

6. First ~~n~~Name and Last Name of the person who performed the transaction on behalf of the Buyer Company;

7. Contact information of the person who performed the transaction on behalf of the Buyer Company;

8. The number of credits proposed to be transferred and any credit identification numbers assigned to the credits by the Executive Officer; and

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

~~Except as provided in section 95487(d) below, the Executive Officer will treat information submitted in the online Credit Transfer Forms as Confidential Business Information.~~

* * * * *

(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 own 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. The broker may include, but is not limited to, a credit transfer service agency or broker who assists in arranging the transfer of credits.

* * * * *

(e) *Prohibited Transactions.* A trade involving, related to, or associated with any of the following are prohibited:

* * * * *

(2) A corner or an attempt to corner the market for ~~a~~ credits;

* * * * *

(5) An application, report, statement, or document required to be filed pursuant to this article 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~~; or~~.

~~(7) 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.~~

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, ~~43000.5, 43013~~ 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. Obtaining and Using Fuel Pathways.

(a) *Applicability*. The requirements set forth in this section shall apply to Regulated Parties and other entities that obtained fuel pathway certifications or registrations under the provisions of the previous LCFS regulation order, and to Regulated Parties and other entities that are seeking fuel pathway certifications under the provisions set forth in section 95488(c) of this regulation order. All fuel providers that initiate the process of securing a LCFS fuel pathway, as set forth in section 95488(c) of this regulation order on or after the effective date of this regulation order shall be bound by the provisions of this regulation order. Subsections (1) through (2~~3~~), below, apply to entities that had obtained Method 1 registrations, or obtained or applied for fuel pathway certifications prior to the effective date of this regulation order.

* * * * *

(3) *"Batch" processing in 2016*. Applications to recertify fuel pathway certifications, registrations that were approved under the previous LCFS (and still in effect on the date this regulation goes into effect) and new applications for fuel pathways in 2016 will, to the extent feasible, be processed in groups based on fuel type in the following order of priority: ethanol, biodiesel, renewable diesel, compressed natural gas, liquefied natural gas, and all others.

(b) *Primary Alternative Fuel Pathway Classifications.* For purposes of fuel pathway carbon intensity determination, proposed LCFS fuel pathways shall fall into one of two tiers, as described below.

(1) *Tier 1*. Conventionally-produced alternative fuels of a type that has been in full commercial production, excluding start-up or ramp-up phase, for at least three years, and for which certified LCFS pathways have existed for at least three years shall be classified into Tier 1. The term "conventionally produced" means that the fuel was produced using grid electricity, natural gas, and/or coal for process energy; and production processes that do not include the innovative methods described in subsection 95488(b)(2)(F). Tier 1 includes, but is not limited to, the following conventionally-produced fuels:

* * * * *

(3) For both Tier 1 and Tier 2 classifications, the following specific information needs to be provided for any fuel pathway carbon intensity determination:

(A) Fuel Type (renewable diesel, ethanol, etc.);

(B) Direct carbon intensity;

(C) An indirect land use change modifier (appropriate iLUC value from Table 5) or other indirect carbon intensity (if applicable); and

(D) Total pathway carbon intensity calculated as a sum from subsections 95488(b)(3)(B) and (C), above.

(c) *Specific Requirements and Procedures.* Any person may apply to the Executive Officer for the establishment of a transportation fuel pathway under the LCFS.

(1) Applicants seeking to obtain a CI under either the Tier 1 or Tier 2 provisions of this regulation order shall begin the application process by completing the online account approval process and completing the electronic New Pathway Request Form, available through the LRT-CBTS

web portal (http://www.arb.ca.gov/lcfsrt) ~~(http://www.arb.ca.gov/fuels/lcfs/reportingtool/reportingtool.htm)~~. The New Pathway Request Form contains the following fields. All that apply are required.

(A) Production ~~C~~company name and full mailing address.

(B) USEPA Company ID for fuels covered by the U.S. Environmental Protection Agency's RFS2 program. For fuels not covered by the RFS2 program, the LRT-CBTS system will generate a Company ID.

(C~~B~~) Company contact person's contact information.

1. Name
2. Title or position
3. Phone number
4. Mobile phone number
5. Facsimile number
6. Email address
7. Web site URL

(D~~C~~) Facility name (or names, if more than one facility is covered by the proposed pathways).

(E~~D~~) Facility address (or addresses, if more than one facility is covered by the proposed pathways).

(F~~E~~) USEPA Facility ID for fuels covered by the U.S. Environmental Protection Agency's RFS2 program. For fuels not covered by the RFS2 program, the LRT-CBTS system will generate a Facility ID.

(G~~F~~) 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.

(H~~G~~) Facility contact person's contact information.

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

(I~~H~~) Facility nameplate production capacity in million gallons per year. This information is required for each facility covered by the proposed pathways.

(J~~I~~) Consultant's contact information

1. Name
2. Title or position
3. Legal company name
4. Phone number
5. Mobile phone number
6. Facsimile number
7. Email address
8. Web site URL

(K~~J~~) *Pathway Tier (Tier 1 or 2)*. The applicant must declare whether the proposed fuel pathway falls under the Tier1 or Tier 2 provisions of this regulation. Once the New Pathway Request Form has been submitted, The Executive Officer will evaluate the applicant's Tier declaration and either approve or reverse it. The Executive Officer will notify the applicant in writing of the results of the evaluation process. The Executive Officer's decision shall be final and not subject to further appeal.

(L~~K~~) *Tier 2 Pathway Type*. Tier 2 applicants may seek a pathway under the Tier 2 Lookup Table, Method 2A, or Method 2B provisions of this regulation. Applicants must declare whether they are seeking a Method 2A, Method 2B, or Tier 2 Lookup Table pathway. Applicants seeking Tier 2 Lookup Table pathways must report the Fuel Pathway Code of the Tier 2 Lookup Table pathway for which they are applying. The Tier 2 Lookup Table, and Methods 2A and 2B are not available to Tier 1 applicants.

(M~~L~~) *Reference Pathway Information*. Tier 2, Method 2A applicants must specify the reference pathway (or pathways, if applicable) for their proposed pathways. Method 2A pathways must improve upon the reference pathway CI by an amount specified in the substantiality requirements in subsection (c)(4)(G)2. For purposes of this regulation, a reference pathway is defined as:

~~1.~~ T~~t~~he pathway from the Tier 2 Lookup Table~~s~~ (Table~~s 5 and~~ 6 in section 95488(c)(4)(F)) to which the proposed Method 2A pathway most closely corresponds, as specified in section 95488(c)(4)(C)~~.~~, or

~~2.~~ A~~a~~ Method 2 pathway for which the applicant previously obtained certification, as set forth in section 95488(c)(4)(G).

The following reference pathway information must be supplied. ~~Reference pathways are defined at section 95488(c)(1)(L).~~

1. Fuel ~~p~~Pathway ~~Identification c~~Code;
2. Fuel Type (renewable diesel, ethanol, etc.);
3. Direct carbon intensity;
4. Indirect ~~L~~land use change or other indirect carbon intensity (Table 5); and
5. Total pathway carbon intensity.

(N~~M~~) For Tier 2 Lookup Table applications, the Tier 2 Lookup Table pathway for which the applicant is applying must be identified using the following information:

1. Fuel ~~p~~Pathway ~~Identification c~~Code;
2. Fuel Type (renewable diesel, ethanol, etc.);
3. Direct carbon intensity;
4. Indirect ~~L~~land use change or other indirect carbon intensity (Table 5); and
5. Total pathway carbon intensity;

(O~~N~~) The following information about the proposed Method 2A or 2B pathway (or pathways) must be provided:

1. Feedstock
2. Direct CI
3. Indirect ~~L~~land use or other indirect CI
4. Total CI
5. Brief pathway description
6. Annual quantity of fuel produced under proposed pathway. If the fuel is a gasoline substitute, quantities shall be reported in units of gasoline-gallon equivalents; if the fuel is a diesel substitute, quantities shall be reported in units of diesel-gallon equivalents.
7. If the plant is not currently operating at full production capacity, the date on which it is expected to reach full production capacity.
8. Will the full production volume be met by a single or multiple facilities?
9. If the full production volume will be met by multiple facilities will all facilities be owned by the same company?
10. Lower heating value (LHV) of the fuel to be produced.
11. Range of production volumes over which the proposed CI(s) are valid.

(2) Once a New Pathway Request Form has been submitted, a record for the proposed fuel pathway will be created in the LRT-CBTS system. That record will be placed into pending status, and will not be available for compliance reporting purposes until the applicant or other interested party submits, via the LRT-CBTS web portal, all information required under sections 95488(c)(3) or (4), and the Executive Officer certifies the proposed pathway. Required for all applications under both sections is a LCFS Fuel Producer ~~Legal Responsibility~~Attestation Letter. Once the proposed pathway has been certified and both an electronic and paper copy of the LCFS Fuel Producer ~~Legal Responsibility~~Attestation Letter have been received and approved by the Executive Officer, the LRT-CBTS record created upon submission of the New Pathway Request form will be activated. The LCFS Fuel Producer ~~Legal Responsibility~~Attestation Letter shall 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. It shall, in addition, make the following specific attestations:

* * * * *

(C) The LCFS Fuel Producer ~~Legal Responsibility~~Attestation Letter shall:

1. Be the original copy. Photocopies, scanned electronic copies, facsimiles, and other non-original documents will not be accepted in lieu of a signed original. A scanned copy of the signed original shall also be submitted via upload to the LRT-CBTS portal.
2. Be on company letterhead.
3. Be signed in blue ink 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.
4. Be from the applicant and not from an entity representing the applicant (such as a consultant or legal counsel).
5. 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 ARB 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 ARB. 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 website: Facility Name, Facility Address, Company ID, Facility ID, Fuel Pathway Code(s), CI values, Fuel Pathway Description(s), Physical Pathway Code(s) and Physical Pathway Description(s).

By submitting this form, _____(Fuel Production Company) accepts responsibility for the information herein provided to the ARB. 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 ARB are true, accurate, and complete.

_____ _____ _____

Signature Print Name & Title Date

Table 5. Summary of iLUC Values

Biofuel	iLUC (gCO_2/MJ)
Corn Ethanol	19.8
Sugarcane Ethanol	11.8
Soy Biodiesel	29.1
Canola Biodiesel	14.5
Sorghum Ethanol	19.4
Palm Biodiesel	71.4

(3) *Tier 1 Pathways*.

(A) Once an applicant has submitted a New Pathway Request form, and been notified by the Executive Officer that the pathway described in the New Pathway Request Form falls under the Tier 1 provisions found at section 95488(b)(1), the applicant shall calculate its pathway carbon intensities using the CA-GREET 2.0 Tier 1 calculator (CA-GREET2.0-T1) found at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm and submit the following information to the Executive Officer for processing and verification.

1. A CA-GREET2.0-T1 model with the Tier 1 calculator interface completed. The Tier 1 calculator interface requires the applicant to enter information including, but not limited to feedstock transport modes and distances, fuel production energy use, electrical generation energy mixes, and finished fuel transport modes and distances. All applicants using grid

electricity must choose electrical generation energy mixes from among the 26 subregions in the ninth edition of the U.S. EPA's Emissions and Generation Resource Integrated Database (eGRID). CA-GREET2.0-T1 contains these eGRID subregional energy mixes.

* * * * *

5. A signed LCFS Fuel Producer ~~Legal Responsibility~~Attestation Letter, as set forth in section 95488(c)(2).

* * * * *

(4) *Tier 2 Pathways*. An applicant may apply for a Tier 2 pathway using either the Tier 2 Lookup Table or Method 2, as set forth in this section.

* * * * *

(B) A regulated party for CARBOB, gasoline, or diesel fuel must use the Tier 2 Lookup Table~~s~~, as set forth in section 95488(c)(4)(C), to determine the carbon intensity of the CARBOB, gasoline, or diesel for which it is responsible.

(C) *Tier 2 Lookup Table Pathways*. The provisions set forth in this section apply exclusively to proposed LCFS fuel pathways that do not fall under the Tier 1 provisions found in section 95488(c)(3). An applicant may apply for a Tier 2 fuel pathway using the Tier 2 Lookup Table~~s~~ if the Tier 2 Lookup Table~~s~~ (Table~~s 5 and~~ 6 in section 95488(c)(4)(F)) contain fuel pathways that closely correspond to the regulated party's actual physical fuel production pathways. A regulated party's actual physical fuel production pathway corresponds closely with a Tier 2 Lookup Table pathway when it is consistent with the Tier 2 Lookup Table pathway in all the following areas:

* * * * *

(D) *Tier 2 Lookup Table Pathway Application Submission Requirements.*

1. *Energy Invoices*. The applicant shall submit Invoices, as set forth in section 95488(c)(3)(A)2., covering a period of no less than two years for all forms of energy consumed in the fuel production process.

* * * * *

3. A signed LCFS Fuel Producer ~~Legal Responsibility~~Attestation Letter, as set forth in section 95488(c)(2).

* * * * *

(F) A carbon intensity value can be used under the provisions set forth in subsections (C) through (E) above only if it appears in one of the Tier 2 Lookup Table (Table 6). To generate the values appearing in Tables 6, the Executive shall use

1. One of the following:

   a. The Tier 1 California-modified GREET model, version 2.0 (CA-GREET2.0-T1, May 22, 2015), which is incorporated herein by reference,

   b. The Tier 2 California-modified GREET model, version 2.0 (CA-GREET2.0 T2, May 22, 2015), which incorporated herein by reference, or

   c. Another model determined by the Executive Officer to be equivalent or superior to CA-GREET 2.0, and

2. An indirect land-use change modifier from Table 5, when applicable.

~~(F) To generate carbon intensity values for use under the Tier 2 Lookup Table provisions set forth in subsection (C), above, the Executive Officer shall use either~~

~~1. Either the Tier 1 or Tier 2 California-modified GREET models, version 2.0 (CA-GREET2.0-T1 or CA-GREET2.0-T2, December 15, 2014), which are incorporated herein by reference, or~~

~~2. Another model determined by the Executive Officer to be equivalent or superior to CA-GREET 2.0,~~

~~3. An indirect land-use change modifier (when applicable).~~

~~4. CA-GREET2.0-T1 and CA-GREET2.0-T2 are available for download from ARB's Fuel Pathway web site at this address: http://www.arb.ca.gov/fuels/lcfs/lcfs.htm.~~

The Carbon Intensity Lookup Table~~s~~, shown below, specify the carbon intensity values for the enumerated fuel pathways that are described in the following supporting documents, all of which are incorporated herein by reference:

Industrial Strategies Division, Air Resources Board. December 15, 2014. Low Carbon Fuel Standard (LCFS) Pathway for the Production of Biomethane from the Mesophilic Anaerobic Digestion of Wastewater Sludge at a Publicly-Owned Treatment Works (POTW). Version 2.0. Pathways CNG020 and CNG021.

Industrial Strategies Division, Air Resources Board. December 15, 2014. Low Carbon Fuel Standard (LCFS) Pathway for the Production of Biomethane from High Solids Anaerobic Digestion (HSAD) of Organic (Food and Green) Wastes. Version 2.0. Pathway CNG005.

Industrial Strategies Division, Air Resources Board. December 15, 2014. Detailed California-Modified GREET Pathway for Ultra Low Sulfur Diesel (ULSD) from Average Crude Refined in California. Version 3. Pathway ULSD001.

Industrial Strategies Division, Air Resources Board. December 15, 2014. Detailed CA-GREET Pathway for California Reformulated Gasoline Blendstock for Oxygenate Blending (CARBOB) from Average Crude Refined in California. Version 3. Pathway CBOB001.

Industrial Strategies Division, Air Resources Board. December 15, 2014. Detailed California-Modified GREET Pathway for California Average and Marginal Electricity. Version 3. Pathway ELC002.

Industrial Strategies Division, Air Resources Board. December 15, 2014. Detailed California Modified GREET Pathway for Compressed Gaseous Hydrogen from North American Natural Gas. Version 3. Pathways HYGN001, HYGN002, HYGN003, HYGN004, and HYGN005.

Table 6~~5~~. Tier 2 Lookup Table for Gasoline and Diesel and Fuels that Substitute for Gasoline and Diesel.[1]

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO_2e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
CARBOB[1]	CBOB001	CARBOB - based on the average crude oil supplied to California refineries and average California refinery efficiencies	99.78~~100.58~~	0	99.78~~100.58~~
Diesel[1]	ULSD001	ULSD - based on the average crude oil supplied to California refineries and average California refinery efficiencies	102.01	0	102.01
Compressed Natural Gas	CNG005	Biomethane produced from the high-solids (greater than 15 percent total solids) anaerobic digestion of food and green wastes; compressed in CA	-22.93~~-34.70~~	0	-22.93~~-34.70~~
	CNG020	Biomethane produced from the mesophillic anaerobic digestion of wastewater sludge at a California publicly owned treatment works; on-site, high speed vehicle fueling or injection of fuel into a pipeline for off-site fueling; export to the grid of surplus cogenerated electricity.	7.75~~7.80~~	0	7.75~~7.80~~
	CNG021	Biomethane produced from the mesophillic anaerobic digestion of wastewater sludge at a California publicly owned treatment works; on-site, high speed vehicle fueling or injection of fuel into a pipeline for off-site fueling.	30.92~~30.98~~	0	30.92~~30.98~~
Electricity	ELC002	California grid electricity	105.16~~105.62~~	0	105.16~~105.62~~
Hydrogen	HYGN001	Compressed H_2 from central reforming of NG (includes liquefaction and re-gasification steps)	151.01~~152.48~~	0	151.01~~152.48~~
	HYGN002	Liquid H_2 from central reforming of NG	143.51~~144.95~~	0	143.51~~144.95~~
	HYGN003	Compressed H_2 from central reforming of NG (no liquefaction and re-gasification steps)	105.65~~105.91~~	0	105.65~~105.91~~
	HYGN004	Compressed H_2 from on-site reforming of NG	105.13~~105.65~~	0	105.13~~105.65~~

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO_2e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
	HYGN005	Compressed H_2 from on-site reforming with renewable feedstocks	88.33~~81.92~~	0	88.33~~81.92~~

[1]The numbers appeared in this table are adjusted by EER at the LRT reporting stage for gasoline (CARBOB) or diesel (ULSD) substitute. These pathways are available to Tier 2 applicants only.

~~Table 6. Tier 2 Lookup Table for Diesel and Fuels that Substitute for Diesel.~~[1]

~~Fuel~~	~~Pathway Identifier~~	~~Pathway Description~~	~~Carbon Intensity Values (gCO_2e/MJ)~~		
			~~Direct Emissions~~	~~Land Use or Other Indirect Effect~~	~~Total~~
~~Diesel~~	~~ULSD001~~	~~ULSD – based on the average crude oil supplied to California refineries and average California refinery efficiencies~~	~~102.82~~	~~0~~	~~102.82~~
~~Compressed Natural Gas~~	~~CNG005~~	~~Biomethane produced from the high solids (greater than 15 percent total solids) anaerobic digestion of food and green wastes; compressed in CA~~	~~-34.70~~	~~0~~	~~-34.70~~
	~~CNG020~~	~~Biomethane produced from the mesophillic anaerobic digestion of wastewater sludge at a California publicly owned treatment works; on-site, high speed vehicle fueling or injection of fuel into a pipeline for off-site fueling; export to the grid of surplus cogenerated electricity.~~	~~7.80~~	~~0~~	~~7.80~~
	~~CNG021~~	~~Biomethane produced from the mesophillic anaerobic digestion of wastewater sludge at a California publicly owned treatment works; on-site, high speed vehicle fueling or injection of fuel into a pipeline for off-site fueling.~~	~~30.98~~	~~0~~	~~30.98~~
~~Electricity~~	~~ELC002~~	~~California grid electricity~~	~~105.62~~	~~0~~	~~105.62~~
~~Hydrogen~~	~~HYGN001~~	~~Compressed H_2 from central reforming of NG (includes liquefaction and re-gasification steps)~~	~~152.48~~	~~0~~	~~152.48~~
	~~HYGN002~~	~~Liquid H_2 from central reforming of NG~~	~~144.95~~	~~0~~	~~144.95~~

~~Fuel~~	~~Pathway Identifier~~	~~Pathway Description~~	~~Carbon Intensity Values (gCO_2e/MJ)~~		
			~~Direct Emissions~~	~~Land Use or Other Indirect Effect~~	~~Total~~
	~~HYGN003~~	~~Compressed H_2 from central reforming of NG (no liquefaction and re-gasification steps)~~	~~105.91~~	~~0~~	~~105.91~~
	~~HYGN004~~	~~Compressed H_2 from on-site reforming of NG~~	~~105.65~~	~~0~~	~~105.65~~
	~~HYGN005~~	~~Compressed H_2 from on-site reforming with renewable feedstocks~~	~~81.92~~	~~0~~	~~81.92~~

~~[1]The numbers appeared in this table are adjusted by EER at the LRT reporting stage. These pathways are available to Tier 2 applicants.~~

(G) The provisions set forth in this subsection 95488(c)(4)(G) apply exclusively to proposed LCFS fuel pathways that do not fall under the Tier 1 provisions found in 95488(c)(3). If no reference pathway meeting the requirements set forth in 95488(c)(1)(L) exists, or if the CI associated with the reference pathway is higher than the applicant's pathway CI by an amount that satisfies the substantiality requirements set forth in 95488(c)(4)(G)2, the applicant may use either Method 2A or Method 2B to establish a producer-specific pathway. The following sections set forth the requirements which apply to Method 2A and Method 2B applications:

1. *Scientific Defensibility Requirements*. For a proposed Method 2A or 2B pathway to be approved by the Executive Officer, the applicant must demonstrate that the life cycle analysis prepared in support of the pathway application is scientifically defensible.

   For purposes of this regulation, "scientifically defensible" means the method for calculating the fuel's carbon intensity has been demonstrated to the Executive Officer as being at least as valid and robust as the process used to generate the carbon intensity values appearing in the Tier 2 Lookup Table~~s~~ (Table~~s 5 and~~ 6**,** subsection 95488(c)(4)(F)). Proof that a proposed method is scientifically defensible 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, and Chemie International).

* * * * *

5. *Submittal File Formats.* All applications and supporting documents shall be in electronic form unless the Executive Officer has approved or requested in writing another submission format. Documents such as receipts, which are available in paper form only, shall be scanned into an electronic file for submittal. The LCFS Fuel Producer ~~Legal Responsibility~~Attestation Letter required under section 95488(c)(2) shall be submitted as an original copy on paper and as a scanned electronic copy.

6. *Additional Submission and File Format Requirements.* An applicant proposing Method 2A or 2B for a fuel's carbon intensity value must meet all the following requirements:

   a. All relevant data, calculations, and other documentation in subsection (A) above must be uploaded through the LRT-CBTS web portal (http://www.arb.ca.gov/lcfsrt) ~~(http://www.arb.ca.gov/fuels/lcfs/reportingtool/reportingtool.htm)~~;

   * * * * *

   ~~d. The applicant must demonstrate that the fuel that will be produced under the proposed pathway is covered by an approved Multimedia Analysis, as required under section 95490;~~

   d~~e~~. The applicant must demonstrate that the fuel that will be produced under the proposed pathway is not exempt from the LCFS under section~~s~~ 95482(c) ~~and (d)~~.

(H) *Selection of Methods 2A and 2B*.

1. *Method 2A*: Applicants shall use Method 2A if

   a. A reference pathway meeting the requirements set forth in section 95488(c)(1)(L) exists either in the Tier 2 Lookup Table~~s~~ (Table~~s 5 and~~ 6), or among the certified Method 2 pathways currently in use by the applicant, and

   * * * * *

2. A Method 2A pathway CI shall be calculated using as a baseline the inputs that were used to calculate the reference pathway's CI. The Method 2A CI shall be calculated by changing one or more of the inputs used to calculate the reference pathway's CI. All changed inputs used to calculate a Method 2A CI must be clearly identified in the Method 2A application. The Executive Officer~~Staff~~ must be able to make the changes identified by the applicant to the inputs used to calculate to reference pathway's CI, and arrive at the same proposed Method 2A CI.

3. *Method 2B*: Method 2B pathways are not subject to the substantiality requirements set forth in section 95488(c)(4)(G)2. Applicants shall use Method 2B if

a. No reference pathway meeting the requirements set forth in subsection 1. above exists in the Tier 2 Lookup Table~~s~~ (Table~~s 5 and~~ 6), or among the certified Method 2 pathways currently being used by the applicant; or

* * * * *

(l) *Specific Method 2A and 2B Fuel Pathway Application Requirements*. Unless otherwise noted, all applicants for a certified Method 2A or 2B fuel pathway shall submit the items specified in this section.

1. *A Life Cycle Analysis Report*. A life cycle analysis report 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 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:

* * * * *

iii. A description of all material inputs to the production process not covered in ii., above. These include, but are not limited to enzymes, nutrients, chemicals, and microorganisms.

* * * * *

10. A signed LCFS Fuel Producer ~~Legal Responsibility~~ Attestation Letter, as set forth in section 95488(c)(2).

(5) *Certification Process*

(A) *Applicability*. Except where other applicability provisions are set forth, the provisions in ~~this~~ section 95488(c)(5) shall apply to all Tier 1 and all Tier 2 Method 2A and Method 2B fuel pathway applications. These provisions ~~in this section~~ shall not apply to Tier 2 Lookup Table applications.

(B) After~~Within 60 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 the application is complete or incomplete. If it is deemed to be incomplete, the Executive Officer shall identify which of the requirements enumerated in this section have not been met. Applicants advised that their applications are incomplete may submit additional information in response to the Executive Officer's findings, and request a new completeness evaluation. If the Executive Officer again deems the application to be incomplete, the applicant may again submit additional information, and again request a new completeness determination. This process may repeat until the application is deemed to be complete, or 180 calendar days have elapses from the date on which the Executive Office received the initial application, whichever occurs first. If the applicant is unable to achieve a complete application within this 180 calendar-day period, the application shall be denied and the applicant shall be informed in writing of that denial.

* * * * *

(F) The Executive Officer will evaluate all applications against the following criteria:~~,~~

1. The Executive Officer will first attempt to replicate the applicant's carbon intensity calculations. Replication will proceed as follows:

* * * * *

ii. The Executive Officer will then apply all CA-GREET2.0-T2 modifications reported by the applicant.

* * * * *

3. The Executive Officer will evaluate the validity of all inputs 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 shall be denied.

(G) Once the Executive Officer has deemed that a Tier 1 application~~s~~ or an application to replace any pathway subject to deactivation under section 95488(a) has~~to have~~ met all requirements for certification, the pathway~~they~~ will be certified and posted to the LCFS fuel pathway certification web page.

(H) For a new Tier 2 Method 2A or 2B pathway application, o~~O~~nce the Executive Officer has deemed that the application has~~Tier 2 Method 2A and 2B applications to have~~ met all requirements necessary for certification, it~~they~~ will be posted to the LCFS fuel pathway comments web site for public comment. Comments will be accepted for 10 ~~calendar~~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 applicant. The Executive Officer will forward to the applicant all comments identifying potential factual or methodological errors. In response, the applicant shall either:

* * * * *

(7) *Recordkeeping.*

* * * * *

(B)~~.~~ These records shall be submitted to the Executive Officer within 20 calendar days from the date that a written request is received from the Executive Officer or his/her designee.

(d) *Special Circumstances*

(1) *Temporary FPCs for Fuels with Indeterminate CIs*. The requirements set forth in this section apply to all fuels with indeterminate CIs that are reported in the LRT-CBTS.

* * * * *

(B) Pursuant to subsection (A) above, the Executive Officer may grant regulated parties permission to use the following carbon intensities for gasoline- and diesel-substitute fuels respectively:

Table 7. Temporary FPCs for Fuels with Indeterminate CIs

Fuel	Feedstock	Process Energy	FPC	CI (gCO_2e/MJ)
Ethanol	Corn	Grid electricity, natural gas, and/or renewables	ETH~~8305~~100T	75.97~~83.05~~
	Sorghum	Grid electricity, natural gas, and/or renewables	ETH~~8956~~101T	83.49~~89.56~~
	Sugar Cane and molasses	Bagasse and straw only; no grid electricity	ETH~~6380~~102T	56.66~~63.80~~
	Any starch or sugar feedstock	Any another	ETH~~9949~~103T	98.47~~99.49~~
	Corn Stover	As specified in CA-GREET 2.0	ETH~~3338~~104T	41.05~~33.38~~
Biodiesel	Any feedstock derived from animal fats	Grid electricity, natural gas, and/or renewables	BIOD~~3793~~200T	37.54~~37.93~~
	Any feedstock derived from plant oils	Grid electricity, natural gas, and/or renewables	BIOD~~5696~~201T	56.95~~56.96~~
	Any feedstock	Any other	BIOD~~10310~~202T	102.01~~103.10~~
Renewable Diesel (UOP process)	Any feedstock derived from animal fats	Grid electricity, natural gas, and/or renewables	RNWD~~3392~~300T	32.26~~33.92~~
	Any feedstock derived from plant oils	Grid electricity, natural gas, and/or renewables	RNWD~~5252~~301T	53.21~~52.52~~
	Any feedstock	Any other	RNWD~~10310~~302T	102.01~~103.10~~
Fossil CNG	Petroleum Natural Gas	N/A	CNG~~8163~~400T	78.37~~81.63~~
Fossil LNG	Petroleum Natural Gas	N/A	LNG~~9697~~401T	94.42~~96.97~~
Fossil L-CNG	Petroleum Natural Gas	N/A	LCNG~~9693~~402T	97.33~~96.93~~
Biomethane CNG	Landfill or digester gas	Grid electricity, natural gas, and/or parasitic load	CNG~~3961~~500T	46.42~~39.61~~

Fuel	Feedstock	Process Energy	FPC	CI (gCO_2e/MJ)
Biomethane LNG	Landfill or digester gas	Grid electricity, natural gas, and/or parasitic load	LNG~~5852~~501T	64.63~~58.52~~
Biomethane L-CNG	Landfill or digester gas	Grid electricity, natural gas, and/or parasitic load	LCNG~~5848~~502T	67.18~~58.48~~
Electricity	Natural gas, dams, wind, etc.	CA mix average	EL~~13113~~600T	110.42~~131.3 1~~
Hydrogen	Centralized reforming of fossil L-CNG	Any	HYDN~~17331~~700T	191.25~~173.3 1~~
	Centralized reforming of fossil LNG		HYDN~~16877~~701T	176.58~~168.7 7~~
	Centralized reforming of fossil CNG		HYDN~~11599~~702T	113.38~~115.9 9~~
	On-site reforming of CNG		HYDN~~10929~~703T	112.48~~109.2 9~~
	On-site reforming of CNG made with renewable feedstocks		HYDN~~8429~~704T	98.05~~84.29~~
Any gasoline substitute feedstock-fuel combination not included above	Any	Any	SG~~9949~~800T	98.47~~99.49~~
Any diesel substitute feedstock-fuel combination not included above	Any	Any	SD~~10310~~801T	102.01~~103.1 0~~

* * * * *

(2) *Provisional Pathways.* As set forth in sections 95488(c)(3) and (c)(4)(I)2., LCFS fuel pathways are generally developed for fuels that have been in full commercial production for at least two years. In order to encourage the development of innovative fuel technologies, however, applicants may submit New Pathway Request Forms, as set forth in section 95488(c)(1), covering Tier 1 and Tier 2 facilities that have been in full commercial operation for less than two years, provided they have been in full commercial production for at least one full calendar quarter. If that form is subsequently approved by the Executive Officer, as set forth in section 95488(c)(2), the applicant shall submit operating records covering all prior periods of full commercial operation, provided those records cover at least one full calendar quarter. The following subsections govern the

development, evaluation, and post-certification monitoring of such provisional pathways.

Following the provisional certification of a fuel pathway application, the applicants shall submit copies of receipts for all energy purchases each calendar quarter until the Executive Officer is in possession of receipts covering two full calendar years of commercial production. At any time during those two years, the Executive Officer may revise as appropriate the plant's actual operational CI based on those receipts. Based on timely reports, the applicant may generate provisional credits. Such credits may not be sold, transferred, or retired for compliance, nor may fuel with a provisional CI be transferred with obligation. The applicant may not sell credits generated under a provisionally-approved fuel pathway, or transfer the provisional fuel with obligation, until the Executive Officer has adjusted the CI or informed the producer that the provisional CI has been successfully corroborated by operational records covering a full two years of commercial operation.

(A) If the plant's operational CI is higher than the provisionally-certified CI, the Executive Officer will replace the certified CI with the operational CI in the LRT-CBTS system and adjust the producer's credit balance accordingly.

(B) If the plant's operational CI appears to be lower than the certified CI, the Executive Officer will take no action. The applicant may, however, petition the Executive Officer for a provisional CI reduction to reflect operational data. In support of such a petition, the applicant must submit a revised application packet that fully documents the requested reduction.

(e) *Evidence of Fuel Transport Mode.* A regulated party may not generate credits pursuant to section 95486 unless it has demonstrated to the Executive Officer that a fuel transport mode exists, for each of the transportation fuels for which it is responsible under the LCFS regulation, and that each fuel transport mode has been approved by the Executive Officer pursuant to this section. Transactions associated with fuels for which a fuel transport mode has not yet been approved must be reported using a fuel transport mode code PHY10 in the LRT-CBTS. Electricity used as a transportation fuel is exempt from this requirement. For purposes of this provision, "demonstrated" and "demonstration" includes any combination of either (i) a showing by the regulated party using its own documentation; or (ii) a showing by the regulated party that incorporates by reference documentation voluntarily submitted by another regulated party or a non-regulated party fuel producer that accurately represents the regulated party's transportation fuel.

A regulated party must submit the demonstration of a fuel transport mode to the Executive Officer within 90 days of providing a fuel in California unless an initial demonstration of fuel transport mode was previously submitted and approved under the provisions of the previous LCFS regulation order. The Executive Officer shall not approve a fuel transport mode demonstration unless it meets the following requirements:

* * * * *

(5) *Submittal and Review of and Final Action on Submitted Demonstrations.*

* * * * *

(B) After~~Within 15 business days of~~ receipt of a fuel transport mode demonstration, the Executive Officer shall determine whether the fuel transport mode demonstration is complete and notify the regulated party accordingly. If incomplete, the Executive Officer shall notify the regulated party and identify the information needed to complete the demonstrations identified in subsections (1) through (3) above. Once the Executive Officer deems the demonstrations to be complete, the Executive Officer shall~~, within 15 business days,~~ take final action to either approve or disapprove a fuel transport mode demonstration and notify the regulated party.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43000.5, 43013~~ 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.

Table 8. 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 2015 and subsequent years	~~12.71~~11.98
	California Baseline Crude Average applicable to crudes supplied in 2013 and 2014	11.39
Annual Crude Average	Volume-weighted California average CI for crudes supplied during 2013	11.37

	~~Volume-weighted California average CI for crudes supplied during 2014~~	~~TBD~~
Algeria	Saharan	11.69
Angola	Cabinda	10.03
	Clov	8.25
	Dalia	9.78
	Gimboa	9.65
	Girassol	10.33
	Greater Plutonio	9.78
	Hungo	9.10
	Kissanje	9.65
	Mondo	9.80
	Nemba	10.19
	Pazflor	8.91
Argentina	Canadon Seco	9.28
	Escalante	9.30
	Hydra	8.08
	Medanito	9.98
Australia	Enfield	5.09
	Pyrenees	5.99
	Stybarrow	6.31
	Van Gogh	6.14
	Vincent	5.05
Azerbaijan	Azeri	8.25
Brazil	Albacora Leste	6.55
	Bijupira-Salema	8.08
	Frade	6.12
	Jubarte	8.37
	Lula	9.94
	Marlim	7.76
	Marlim Sul	8.49
	Ostra	6.54
	Polvo	6.39
	Roncador	7.44
	Roncador Heavy	7.09
	Sapinhoa	8.53
Cameroon	Lokele	22.29
Canada	Access Western Blend	~~17.21~~16.31
	Albian Heavy Synthetic (all grades)	~~20.52~~19.90
	Albian Muskeg River Heavy	~~20.52~~19.90
	BC Light	8.27
	Bonnie Glen	8.27
	Borealis Heavy Blend	~~18.32~~17.21
	Boundary Lake	8.27
	Bow River	9.27
	Cardium	8.27
	Christina Dilbit Blend	~~14.04~~13.34
	Christina Synbit	~~17.90~~17.43
	Cold Lake	~~19.64~~18.40

	Conventional Heavy	9.27
	CNRL Light Sweet Synthetic	21.39
	Federated	8.27
	Fosterton	9.27
	Gibson Light Sweet	8.27
	Halkirk	8.27
	Hardisty Light	8.27
	Hardisty Synthetic	~~36.96~~35.27
	Husky Synthetic	~~36.62~~35.42
	Joarcam	8.27
	Kearl Lake	12.05
	Kerrobert Sweet	8.27
	Koch Alberta	8.27
	Light Sour Blend	8.27
	Light Sweet	8.27
	Lloyd Blend	9.27
	Lloyd Kerrobert	9.27
	Lloydminster	9.27
	Long Lake Heavy	~~32.04~~29.88
	Long Lake Light Synthetic	~~37.29~~35.12
	Mackay Heavy Blend	~~20.76~~20.01
	Medium Gibson Sour	8.27
	Medium Sour Blend	8.27
	Midale	8.27
	Mixed Sour Blend	8.27
	Mixed Sweet	8.27
	Moose Jaw Tops	8.27
	Peace	8.27
	Peace Pipe Sour	8.27
	Peace River Heavy	~~22.03~~20.59
	Peace River Sour	8.27
	Pembina	8.27
	Pembina Light Sour	8.27
	Premium Albian Synthetic	21.39
	Premium Conventional Heavy	9.27
	Premium Synthetic	21.39
	Rainbow	8.27
	Rangeland Sweet	8.27
	Redwater	8.27
	Seal Heavy	9.27
	Shell Synthetic (all grades)	21.39
	Smiley-Coleville	9.27
	Sour High Edmonton	8.27
	Sour Light Edmonton	8.27
	Statoil Cheecham Dilbit	~~15.32~~14.49
	Statoil Cheecham Synbit	~~18.75~~18.20
	Suncor Synthetic (all grades)	~~24.16~~23.71
	Surmont Heavy Blend	~~18.82~~18.26
	Synbit Blend	~~21.65~~20.76

	Syncrude Synthetic (all grades)	21.39
	Synthetic Sweet Blend	~~22.78~~22.55
	Tundra Sweet	8.27
	Wabasca	6.79
	Western Canadian Blend	9.27
	Western Canadian Select	~~19.31~~18.43
Chad	Doba	8.08
Colombia	Cano Limon	9.41
	Castilla	9.61
	Cusiana	10.67
	Magdalena	~~22.27~~21.01
	Rubiales	9.20
	South Blend	9.22
	Vasconia	9.33
Congo	Azurite	11.49
	Djeno	11.87
Ecuador	Napo	9.56
	Oriente	10.90
Equatorial Guinea	Ceiba	10.88
	Zafiro	21.56
Iran	Dorood	13.37
	Forozan	11.09
	Iran Heavy	12.49
	Iran Light	13.50
	Lavan	11.80
	Nowruz-Soroosh	10.95
	Sirri	10.77
Iraq	Basra Light	13.08
Kuwait	Kuwait	10.31
Libya	Amna	13.98
Malaysia	Tapis	11.00
Mauritania	Chinquetti	9.28
Mexico	Isthmus	10.16
	Isthmus Topped	13.16
	Maya	7.97
Neutral Zone	Eocene	7.48
	Khafji	9.04
	Ratawi	9.42
Nigeria	Agbami	19.29
	Amenam	17.92
	Antan	33.44
	Bonga	6.44
	Bonny	15.53
	Brass	82.48
	EA	6.24
	Erha	10.50
	Escravos	20.52
	Forcados	22.41
	Okono	27.55

	OKWB	34.80
	Pennington	21.69
	Qua Iboe	15.25
	Yoho	15.25
Oman	Oman	~~12.72~~12.35
Peru	Loreto	8.23
	Mayna	9.85
Russia	ESPO	13.70
	M100	19.18
	Sokol	10.51
	Vityaz	11.55
Saudi Arabia	Arab Extra Light	9.35
	Arab Light	9.15
	Arab Medium	8.66
	Arab Heavy	8.77
Thailand	Bualuang	5.12
Trinidad	Calypso	7.37
	Galeota	10.57
UAE	Murban	9.92
	Upper Zakum	8.97
Venezuela	Bachaquero	~~26.77~~25.42
	Boscan	10.76
	Hamaca	23.51
	Hamaca DCO	7.63
	Laguna	~~26.77~~25.42
	Mesa 30	11.45
	Petrozuata (all synthetic grades)	23.53
	Zuata (all synthetic grades)	23.51
US Alaska	Alaska North Slope	12.93
US Colorado	Niobrara	8.03
US New Mexico	Four Corners	9.37
	New Mexico Intermediate	9.37
	New Mexico Sour	9.37
	New Mexican Sweet	9.37
US North Dakota	Bakken	10.18
	North Dakota Sweet	10.18
	Williston Basin Sweet	10.18
US Oklahoma	Oklahoma Sour	12.03
	Oklahoma Sweet	12.03
US Texas	Eagle Ford Shale	12.03
	East Texas	12.03
	North Texas Sweet	12.03
	South Texas Sweet	12.03
	West Texas Intermediate	12.03
	West Texas Sour	12.03
US Utah	Covenant	3.78
	Grand Cane	5.99
	Utah Black Wax	5.09
	Utah Sweet	~~6.14~~5.99

US Wyoming	Wyoming Sweet	24.11
US California Fields	Aliso Canyon	4.16
	Ant Hill	22.04
	Antelope Hills	6.56
	Antelope Hills, North	~~20.91~~19.14
	Arroyo Grande	~~32.63~~29.33
	Asphalto	8.00
	Bandini	6.78
	Bardsdale	3.63
	Barham Ranch	2.64
	Beer Nose	2.50
	Belgian Anticline	3.56
	Bellevue	7.52
	Bellevue, West	4.55
	Belmont, Offshore	4.15
	Belridge, North	~~4.90~~4.77
	Belridge, South	~~16.65~~14.84
	Beverly Hills	4.49
	Big Mountain	2.58
	Blackwells Corner	5.03
	Brea-Olinda	3.17
	Buena Vista	~~7.56~~7.45
	Burrel	25.23
	Cabrillo	2.49
	Canal	4.17
	Canfield Ranch	3.99
	Carneros Creek	3.40
	Cascade	2.12
	Casmalia	9.35
	Castaic Hills	2.52
	Cat Canyon	~~4.13~~4.08
	Cheviot Hills	3.39
	Chico-Martinez	~~17.24~~15.81
	Cienaga Canyon	4.08
	Coalinga	~~32.82~~27.85
	Coles Levee, N	4.56
	Coles Levee, S	2.70
	Comanche Point	~~8.32~~7.88
	Coyote, East	6.15
	Cuyama, South	14.43
	Cymric	~~21.48~~19.23
	Deer Creek	9.96
	Del Valle	4.73
	Devils Den	5.88
	Edison	~~16.67~~15.55
	El Segundo	3.77
	Elk Hills	6.30
	Elwood, S., Offshore	3.57
	Fruitvale	3.87

	Greeley	9.60
	Hasley Canyon	2.15
	Helm	3.93
	Holser	3.04
	Honor Rancho	4.09
	Huntington Beach	5.11
	Hyperion	2.05
	Inglewood	9.52
	Jacalitos	2.40
	Jasmin	~~13.98~~12.77
	Kern Front	~~29.65~~25.10
	Kern River	~~12.99~~9.63
	Kettleman Middle Dome	3.70
	Kettleman North Dome	5.14
	Landslide	12.17
	Las Cienegas	4.63
	Livermore	2.56
	Lompoc	19.65
	Long Beach	6.84
	Long Beach Airport	4.02
	Los Angeles Downtown	5.71
	Los Angeles, East	10.02
	Lost Hills	~~11.18~~10.26
	Lost Hills, Northwest	3.91
	Lynch Canyon	~~12.97~~12.00
	Mahala	2.70
	McCool Ranch	3.32
	McDonald Anticline	4.30
	McKittrick	~~28.72~~24.64
	Midway-Sunset	~~29.27~~25.05
	Montalvo, West	2.28
	Montebello	14.96
	Monument Junction	3.62
	Mount Poso	~~11.71~~11.17
	Mountain View	3.71
	Newhall-Potrero	2.85
	Newport, West	4.38
	Oak Canyon	3.50
	Oak Park	2.48
	Oakridge	2.39
	Oat Mountain	2.59
	Ojai	2.75
	Olive	1.98
	Orcutt	~~13.35~~12.71
	Oxnard	~~9.99~~9.16
	Paloma	3.51
	Placerita	~~41.72~~31.20
	Playa Del Rey	4.58
	Pleito	2.60

	Poso Creek	~~32.09~~28.15
	Pyramid Hills	3.34
	Railroad Gap	5.05
	Raisin City	8.72
	Ramona	3.41
	Richfield	4.40
	Rincon	3.93
	Rio Bravo	5.75
	Rio Viejo	2.87
	Riverdale	3.74
	Rose	2.70
	Rosecrans	5.52
	Rosecrans, South	3.11
	Rosedale	6.49
	Rosedale Ranch	8.00
	Round Mountain	~~27.77~~25.99
	Russell Ranch	7.56
	Salt Lake	2.67
	Salt Lake, South	3.84
	San Ardo	~~31.48~~27.26
	San Miguelito	5.65
	San Vicente	2.47
	Sansinena	2.56
	Santa Clara Avenue	3.49
	Santa Fe Springs	10.50
	Santa Maria Valley	5.15
	Santa Susana	2.93
	Sargent	3.98
	Saticoy	3.33
	Sawtelle	3.18
	Seal Beach	5.08
	Semitropic	3.48
	Sespe	2.79
	Sevier	2.42
	Shafter, North	3.01
	Shiells Canyon	3.38
	South Mountain	3.31
	Stockdale	2.13
	Tapia	~~7.94~~7.55
	Tapo Canyon, South	2.92
	Tejon	6.49
	Tejon Hills	6.47
	Tejon, North	3.14
	Temescal	2.75
	Ten Section	6.60
	Timber Canyon	2.99
	Torrance	4.49
	Torrey Canyon	2.73
	Union Avenue	3.57

	Ventura	4.61
	Wayside Canyon	1.67
	West Mountain	2.84
	Wheeler Ridge	4.28
	White Wolf	1.88
	Whittier	2.42
	Wilmington	7.02
	Yowlumne	10.62
	Zaca	8.16
US California Sub-Field	Edison Light	5.40
	South Belridge Light	4.03
US Federal OCS	Beta	1.71
	Carpinteria	2.85
	Dos Cuadras	4.00
	Hondo	5.54
	Hueneme	3.04
	Pescado	5.72
	Point Arguello	14.23
	Point Pedernales	9.38
	Sacate	3.59
	Santa Clara	2.47
	Sockey	8.35
Default		~~12.71~~11.98

* Based on production and transport of the crude oil supplied to the indicated California refinery(ies) during the baseline calendar year, 2010

(a) *General.* Deficit calculations to be used for a regulated party's CARBOB or diesel fuel are specified in section 95489(b). Requirements for adding incremental emission increases associated with an increase in the carbon intensity of crude oil to a regulated party's compliance obligation are specified in section 95489(c). The credit calculation for crude oil that is produced using innovative methods, such as carbon capture and sequestration (CCS), is specified in section 95489(d). Special requirements for low-complexity/low-energy-use refineries are specified in section 95489(e). The credit calculation for investments that reduce greenhouse gas emissions at refineries is specified in section 95489(f).

(b) *Deficit Calculation for CARBOB or Diesel Fuel.* A regulated party 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 ~~$CI_{20XXCrudeAve} > CI_{BaselineCrudeAve}$~~ $CI_{20XXCrudeAve} > CI_{BaselineCrudeAve} + 0.10$
then:

$$Deficits^{XD}_{Incremental20XX} = (CI_{BaselineCrudeAve} - CI_{20XXCrudeAve}) \times E^{XD} \times C$$

If ~~$CI_{20XXCrudeAve} \leq CI_{BaselineCrudeAve}$~~ $CI_{20XXCrudeAve} \leq CI_{BaselineCrudeAve} + 0.10$
then:

$$Deficits^{XD}_{Incremental20XX} = 0$$

where,

$Deficits^{XD}_{Base}(MT)$ and $Deficits^{XD}_{Incremental20XX}$ 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;

$CI^{XD}_{Standard}$ has the same meaning as specified in section 95486(b)(3)(A);

$CI^{XD}_{BaselineAve}$ 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, $CI^{XD}_{BaselineAve}$ for CARBOB (XD = "CARBOB") and diesel fuel (XD = "diesel") are the Baseline Average carbon intensity values for CARBOB and diesel (ULSD) set forth in ~~the Carbon Intensity Lookup Table~~Table 6. 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 $CI_{2015CrudeAve}$,the baseline is:

~~$$CI_{BaselineCrudeAve} = \frac{[11.39 \times V_{2013} + 11.39 \times V_{2014} + 12.71 \times V_{2015}]}{[V_{2013} + V_{2014} + V_{2015}]}$$~~

$$CI_{BaselineCrudeAve} = \frac{[11.39 \times V_{2013} + 11.39 \times V_{2014} + 11.98 \times V_{2015}]}{[V_{2013} + V_{2014} + V_{2015}]}$$

For comparison to $CI_{2016CrudeAve}$, the baseline is:

~~$CI_{BaselineCrudeAve} = \frac{[11.39 \times V_{2014} + 12.71 \times V_{2015} + 12.71 \times V_{2016}]}{[V_{2014} + V_{2015} + V_{2016}]}$~~

$$\underline{CI_{BaselineCrudeAve} = \frac{[11.39 \times V_{2014} + 11.98 \times V_{2015} + 11.98 \times V_{2016}]}{[V_{2014} + V_{2015} + V_{2016}]}}$$

For comparison to $CI_{2017CrudeAve}$ and subsequent years, the baseline is

~~$CI_{BaselineCrudeAve} = 12.71$~~

$$\underline{CI_{BaselineCrudeAve} = 11.98}$$

$CI_{20XXCrudeAve}$ 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 2015 is:

$$CI_{2015CrudeAve} = \frac{[CI_{2013} \times V_{2013} + CI_{2014} \times V_{2014} + CI_{2015} \times V_{2015}]}{[V_{2013} + V_{2014} + V_{2015}]}$$

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(c). The Annual Crude Average carbon intensity value~~s~~ for 2013 ~~and 2014 are~~is specified in Table 8.

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 3, either produced in California or imported into California during a specific calendar year and sold, supplied, or offered for sale in California.

$$C = 1.0 \times 10^{-6} \frac{MT}{gCO_2e}$$

(c) *Addition of Incremental Deficits that Result from Increases in the Carbon Intensity of Crude Oil to a Regulated Party'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 regulated party'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 regulated party will be based upon the amount of CARBOB and diesel fuel supplied by the regulated party 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 regulated parties 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 8. For crude names not listed, the default carbon intensity value from Table 8 will be used until the crude name and carbon intensity value is added to Table 8 as described in section 95489(c)(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 (http://www.arb.ca.gov/fuels/lcfs/lcfs.htm) 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 completion of the comment period, if no comments are received. If comments are received, the Executive Officer shall post the final Annual Crude Average carbon intensity value within 30 days of completion of the comment period or within 25 days of the latest request by the Executive Officer for additional information or clarification from a commenter, whichever is later.

(C) Revisions to the OPGEE model, addition of crudes to Table 8, and updates to all carbon intensity values listed in Table 8 will be considered on a three-year cycle through proposed amendments of the Low Carbon Fuel Standard regulation.

(d) *Credits for Producing Crudes using Innovative Methods.* A crude oil producer or refinery receiving the crude may generate credits for crude oil that has been produced 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 using one or more of the following technologies:

1. Solar steam generation (generated steam of ~~65~~55 percent quality or greater). Steam must be used onsite at the crude oil production facilities.

* * * * *

(F) Credits for producing crude oil with innovative methods must be calculated as specified below:

For crude oil produced using solar steam generation (generated steam of 75 percent quality or greater):

~~$Credits_{Innov}(MT) = 29360 \times \frac{V_{steam} \times f_{solar}}{V_{crudeproduced}} \times V_{Innov} \times C$~~

$Credits_{Innov}(MT) = 26765 \times \frac{V_{steam} \times f_{solar}}{V_{crudeproduced}} \times V_{Innov} \times C$

For crude oil produced using solar steam generation (generated steam of 65 to 75 percent quality):

~~$Credits_{Innov}(MT) = 28011 \times \frac{V_{steam} \times f_{solar}}{V_{crudeproduced}} \times V_{Innov} \times C$~~

$Credits_{Innov}(MT) = 24992 \times \frac{V_{steam} \times f_{solar}}{V_{crudeproduced}} \times V_{Innov} \times C$

For crude oil produced using solar steam generation (generated steam of 55 to 65 percent quality):

$$Credits_{Innov}(MT) = 23219 \times \frac{V_{steam} \times f_{solar}}{V_{crudeproduced}} \times V_{Innov} \times C$$

For crude oil produced 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 using any other innovative method listed in section 95489(d)(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 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;

f_{solar} means the fraction of injected steam that is produced using solar;

$V_{crudeproduced}$ means the volume, in barrels, of crude oil produced using the innovative method;

V_{Innov} means the volume, in barrels, of crude oil produced using the innovative method and delivered to California refineries for processing. If the crude produced 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 multiplied times the volume fraction of the crude within the blend that was produced using the innovative method.

$$C = 1.0 \times 10^{-6} \frac{MT}{gCO_2e}$$

$E_{electricity}$ means the overall electricity consumption to produce 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 with the innovative method as compared to crude oil production 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 with the innovative method.

(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 must register under section 95483.1 as an opt-in regulated party to receive LCFS credit for an innovative method, and that if the crude oil producer does not register as an opt-in regulated party, 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(d)(2)(B)2.; and

4. A preliminary estimate of the potential innovative method credit, calculated as required in section 95489(d)(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 (~~65~~55 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 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:

* * * * *

(D) An application, except for solar-generated steam (~~65~~55 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 ARB 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:

* * * * *

(e) *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 ~~and deficit~~ calculation~~s~~ in section 95489(e)(3) and the refinery-specific incremental deficit calculation in section 95489(e)(4), a Low-Complexity/Low-Energy-Use Refinery must meet the criteria in section 95481(a)(5~~4~~7) 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 9;

$Capacity_i$ is the capacity of each unit listed in Table 9 in barrels per day;

$Capacity_{dist}$ is the capacity of the distillation unit in barrels per day;

i is the process unit; and

n is the total number of process units.

Table 9. Nelson Complexity Indices.

Process Unit	***Index Value***
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	1.00
Sulfur Extraction	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 regulated party that is including adjustments or credits for a Low-Complexity/Low-Energy-Use Refinery must also report the following information for that refinery:

(A) The volume of CARBOB and diesel produced from crude oil;

(B) The volume of CARBOB and diesel produced from transmix;

(C) The volume of CARBOB and diesel produced from Petroleum ~~i~~Intermediate feedstocks; and

(D) The volume of CARBOB and diesel purchased for blending.

(3) Credits ~~and deficits~~ for a low-complexity/low-energy-use refinery must be calculated in the LCFS Reporting Tool using the following equations:

(A) *Carbon Intensity Adjustment.* For volumes reported in section 95489(e)(2)(A) a non-transferable credit of 5.0 gCO_2e/MJ will be generated.~~:~~

~~$CI^{XD}_{LC-LE} = CI^{XD}_{reported} - Adjustment$~~

~~where:~~

~~$CI^{XD}_{Reported}$ is the carbon intensity listed in Table 5 for CARBOB and Table 6 for diesel;~~

~~$Adjustment$ is the value listed in Table 10.~~

~~Table 10. Adjustment for CARBOB and Diesel.~~

~~Volume Reported~~	~~Adjustment (gCO_2e/MJ)~~
~~Section 95489(e)(2)(A)~~	~~5~~
~~Section 95489(e)(2)(B),(C), and (D)~~	~~0~~

(B) *Credit ~~and Deficit~~ Calculation*. For CARBOB and diesel volumes reported in section 95489(e)(2)(A):

~~$Credits_{LC-LE}^{XD}|Deficits_{LC-LE}^{XD} = (CI_{Standard}^{XD} - CI_{LC-LE}^{XD}) \times E^{XD} \times C$~~

$Credits_{LC-LE}^{XD} = 5\ gCO2e/MJ \times VF^{XD} \times E^{XD} \times C$

where:

~~$CI_{Standard}^{XD}$ is the carbon intensity listed in Table 5 for CARBOB and Table 6 for diesel;~~

~~CI_{LC-LE}^{XD} is the carbon intensity pursuant to section 95489(e)(3)(A);~~

$Credits_{LC-LE}^{XD}$ 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(e)(2)(A) by the total volume of CARBOB or diesel reported for sections 95489(e)(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 3, either produced in California or imported into California during a specific calendar year and sold, supplied, or offered for sale in California; and

~~C is the conversion factor set forth in section 95486(b)(1).~~

$C = 1.0 \times 10^{-6} \frac{MT}{gCO_2e}$

(C) Credits created pursuant to section 95489(e) may not be sold or transferred to any other party.

(4) Low-complexity/low-energy-use refineries may elect to use refinery-specific incremental deficit calculations as provided in this section 95489(e)(4) in lieu of the incremental deficit calculation specified in section 95489(b).

(A) Refinery-specific incremental deficit calculation is subject to both of the following restrictions:

1. An authorized officer of the operator of a low-complexity/low-energy-use refinery must notify the Executive Officer of the operator's intent to use a refinery-specific incremental deficit calculation by delivering a signed written statement to the Executive Officer no later than January 31, 2016. This notification must include a detailed calculation of the Refinery Baseline Crude Average carbon intensity per section 95489(e)(4)(D).

2. The decision to elect to use a refinery-specific incremental deficit calculation is not reversible, and use of the calculation will be mandatory in 2016 and for all future compliance periods.

(B) Only those volumes of CARBOB and diesel fuel produced from crude oil as reported pursuant to section 95489(e)(2)(A) are eligible for refinery-specific incremental deficit calculation. Those volumes of CARBOB and diesel fuel reported pursuant to sections 95489(e)(2)(B) through (D) must be assessed the incremental deficit as specified in section 95489(b). The total incremental deficit for the low-complexity/low-energy-use refinery is calculated as follows:

If ~~$CI_{20XXCrudeAve} > CI_{BaselineCrudeAve}$~~
$CI_{20XXCrudeAve} > CI_{BaselineCrudeAve} + 0.10$ and
~~$CI^{LC-LE}_{20XXCrudeAve} > CI^{LC-LE}_{BaselineCrudeAve}$~~ $CI^{LC-LE}_{20XXCrudeAve} > CI^{LC-LE}_{BaselineCrudeAve} + 0.10$ then:

~~$Deficits^{XD}_{Incr20XX} = \left[(CI_{BaselineCrudeAve} - CI_{20XXCrudeAve}) \times (1 - VF) + (CI^{LC-LE}_{BaselineCrudeAve} - CI^{LC-LE}_{20XXCrudeAve}) \times VF\right] \times E^{XD} \times C$~~

$Deficits^{XD}_{Incr20XX} = \left[(CI_{BaselineCrudeAve} - CI_{20XXCrudeAve}) \times (1 - VF^{XD}) + (CI^{LC-LE}_{BaselineCrudeAve} - CI^{LC-LE}_{20XXCrudeAve}) \times VF^{XD}\right] \times E^{XD} \times C$

If ~~$CI_{20XXCrudeAve} > CI_{BaselineCrudeAve}$~~
$CI_{20XXCrudeAve} > CI_{BaselineCrudeAve} + 0.10$ and
~~$CI^{LC-LE}_{20XXCrudeAve} \leq CI^{LC-LE}_{BaselineCrudeAve}$~~ $CI^{LC-LE}_{20XXCrudeAve} \leq CI^{LC-LE}_{BaselineCrudeAve} + 0.10$ then:

~~$Deficits^{XD}_{Incr20XX} = (CI_{BaselineCrudeAve} - CI_{20XXCrudeAve}) \times (1 - VF) \times E^{XD} \times C$~~

$\underline{Deficits^{XD}_{Incr20XX} = (CI_{BaselineCrudeAve} - CI_{20XXCrudeAve}) \times (1 - VF^{XD}) \times E^{XD} \times C}$

If ~~$CI_{20XXCrudeAve} \leq CI_{BaselineCrudeAve}$~~
$\underline{CI_{20XXCrudeAve} \leq CI_{BaselineCrudeAve} + 0.10}$ and
~~$CI^{LC-LE}_{20XXCrudeAve} > CI^{LC-LE}_{BaselineCrudeAve}$~~ $\underline{CI^{LC-LE}_{20XXCrudeAve} \geq CI^{LC-LE}_{BaselineCrudeAve} + 0.10}$ then:

~~$Deficits^{XD}_{Incr20XX} = (CI^{LC-LE}_{BaselineCrudeAve} - CI^{LC-LE}_{20XXCrudeAve}) \times VF \times E^{XD} \times C$~~

$\underline{Deficits^{XD}_{Incr20XX} = (CI^{LC-LE}_{BaselineCrudeAve} - CI^{LC-LE}_{20XXCrudeAve}) \times VF^{XD} \times E^{XD} \times C}$

If ~~$CI_{20XXCrudeAve} \leq CI_{BaselineCrudeAve}$~~
$\underline{CI_{20XXCrudeAve} \leq CI_{BaselineCrudeAve} + 0.10}$ and
~~$CI^{LC-LE}_{20XXCrudeAve} \leq CI^{LC-LE}_{BaselineCrudeAve}$~~ $\underline{CI^{LC-LE}_{20XXCrudeAve} \leq CI^{LC-LE}_{BaselineCrudeAve} + 0.10}$ then:

$\underline{Deficits^{XD}_{Incr20XX} = 0}$

where:

$\underline{Deficits^{XD}_{Incr20XX}}$ means the amount of LCFS incremental deficits incurred (a negative value), in metric tons, by the volume of CARBOB (XD = "CARBOB") and diesel (XD = "diesel") that is derived from petroleum feedstock and is either produced at or supplied to the low-complexity/low-energy-use refinery during a specific calendar year;

$\underline{CI_{20XXCrudeAve}}$ has the same meaning as specified in section 95489(b);

$\underline{CI_{BaselineCrudeAve}}$ has the same meaning as specified in section 95489(b);

$\underline{CI^{LC-LE}_{20XXCrudeAve}}$ is the Three-year Refinery Crude Average carbon-intensity value, in gCO_2e/MJ, attributed to the production and transport of the crude oil supplied as petroleum feedstock to the low-complexity/low-energy-use refinery during specified calendar years. $\underline{CI^{LC-LE}_{2015CrudeAve}}$ will be calculated using data for crude oil supplied to the low-complexity/low-energy-use refinery during the calendar year 2015. $\underline{CI^{LC-LE}_{2016CrudeAve}}$ will be calculated

using data for crude oil supplied to the low-complexity/low-energy-use refinery during the calendar years 2015 and 2016. $CI^{LC-LE}_{2017CrudeAve}$ will be calculated using data for crude oil supplied to the low-complexity/low-energy-use refinery during the calendar years 2015, 2016, and 2017. All subsequent updates to $CI^{LC-LE}_{20XXCrudeAve}$ will be calculated using data for crude oil supplied to the low-complexity/low-energy-use refinery during the most recent three calendar years;

$CI^{LC-LE}_{BaselineCrudeAve}$ is the Refinery 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 the low-complexity/low-energy-use refinery during the baseline calendar year, 2010. The Baseline Crude Average carbon intensity value is calculated using data for crude oil supplied to the low-complexity/low-energy-use refinery during the baseline calendar year, 2010;

VF^{XD} ~~VF~~ means the volume fraction of CARBOB (XD = "CARBOB") or~~and~~ 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(e)(2)(A) by the total volume of CARBOB or diesel reported for sections 95489(e)(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 3, either produced in California or imported into California during a specific calendar year and sold, supplied, or offered for sale in California.

$C = 1.0 \times 10^{-6} \frac{MT}{gCO_2e}$.

(C) Process for calculating the Three-year Refinery Crude Average carbon intensity value.

1. The Three-year Refinery Crude Average carbon intensity value will be calculated using a volume-weighted average of crude carbon intensity values. Volumes for crudes will be the total volumes reported by the low-complexity/low-energy-use refinery in the Annual Compliance Report(s) for the calendar year(s). Crude carbon intensity values are those listed in Table 8. For crude names not listed, ~~the~~a default carbon intensity value ~~from Table 8~~equal to the Refinery Baseline Crude Average carbon intensity will be used until

the crude name and carbon intensity value is added to Table 8 as described in section 95489(c)(3)(C).

2. Within 15 days of receiving the Annual Compliance report for the refinery, the Executive Officer shall post the Three-year Refinery Crude Average carbon intensity calculation at the LCFS web site (http://www.arb.ca.gov/fuels/lcfs/lcfs.htm) for public comment, deleting material that constitutes confidential business information from the posted calculation. 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~~Three-year Refinery 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 Three-year Refinery Crude Average carbon intensity value at the LCFS web site within 15 days of completion of the comment period, if no comments are received. If comments are received, the Executive Officer shall post the final ~~Annual~~Three-year Refinery carbon intensity value within 30 days of completion of the comment period or within 25 days of the latest request by the Executive Officer for additional information or clarification from a commenter, whichever is later.

(D) Process for calculating the Refinery Baseline Crude Average carbon intensity value.

1. The Refinery Baseline Crude Average carbon intensity value will be calculated using a volume-weighted average of crude carbon intensity values. Volumes for crudes will be the total volumes supplied to the low-complexity/low-energy-use refinery during the baseline year 2010. Crude carbon intensity values are those listed in Table 10~~1~~.

2. The Executive Officer shall evaluate the calculation received from the low complexity-low energy use refinery and, if the Executive Officer deems it necessary, may request in writing additional information or clarification. Upon resolution of all issues associated with the calculation, the Executive Officer shall post the final Refinery Baseline Crude Average carbon intensity value at the LCFS web site, deleting material that

constitutes confidential business information from the posted calculation.

Table 10~~1~~. Carbon ~~i~~Intensity ~~v~~Values for ~~c~~Crudes ~~s~~Supplied during 2010.

Country/State	Crude Name	2010 CI (gCO_2/MJ)
Angola	Dalia	9.44
	Girassol	9.95
	Greater Plutonio	9.51
Argentina	Canadon Seco	9.14
	Escalante	9.16
	Hydra	8.01
Australia	Pyrenees	5.82
Brazil	Albacora Leste	6.50
	Frade	6.11
	Marlim	7.58
	Marlim Sul	8.40
	Ostra	6.60
	Polvo	6.43
Cameroon	Lokele	24.46
Canada	Albian Heavy Synthetic	~~20.54~~19.92
	Cold Lake	~~19.64~~18.40
	Federated	7.62
	Koch Alberta	7.62
	Mixed Sweet	7.62
	Suncor Synthetic	~~23.78~~23.38
	Syncrude Synthetic	21.44
Colombia	Castilla	9.65
	Vasconia	9.39
Ecuador	Napo	9.82
	Oriente	11.15
Iraq	Basra Light	13.21
Neutral Zone	Eocene	7.27
	Ratawi	9.03
Nigeria	Bonny	17.58
Oman	Oman	~~12.75~~12.38
Peru	Loreto	8.62
	Mayna	10.19
Russia	ESPO	13.43
Saudi Arabia	Arab Extra Light	9.16
	Arab Light	9.04

Trinidad	Calypso	7.01
Venezuela	Boscan	10.09
	Petrozuata	23.25
	Zuata	23.22
US Alaska	ANS	11.53
US North Dakota	Bakken	8.71
US California	Aliso Canyon	2.69
	Ant Hill	23.59
	Antelope Hills	3.05
	Antelope Hills, North	~~13.94~~12.83
	Arroyo Grande	~~30.58~~27.60
	Asphalto	7.00
	Bandini	7.96
	Bardsdale	5.35
	Barham Ranch	2.60
	Belgian Anticline	3.20
	Bellevue	9.02
	Bellevue, West	9.17
	Belmont, Offshore	3.55
	Belridge, North	~~4.70~~4.58
	Belridge, South	~~15.22~~13.58
	Beverly Hills	4.42
	Big Mountain	2.85
	Brea-Olinda	3.15
	Buena Vista	~~7.26~~7.07
	Cabrillo	2.44
	Canal	4.42
	Canfield Ranch	3.82
	Caneros Creek	3.14
	Cascade	2.11
	Casmalia	8.02
	Castaic Hills	3.06
	Cat Canyon	4.00
	Cheviot Hills	3.23
	Cienaga Canyon	4.26
	Coalinga	~~31.40~~26.62
	Coalinga, East	17.78
	Coles Levee, N	4.50
	Coles Levee, S	2.67
	Coyote, East	5.88
	Cuyama, South	12.36

	Cymric	~~22.62~~20.30
	Deer Creek	10.17
	Del Valle	4.56
	Devils Den	5.58
	Edison	~~9.28~~8.83
	El Segundo	3.22
	Elk Hills	5.20
	Elwood, S., Offshore	4.29
	Fruitvale	~~11.17~~10.47
	Greeley	8.52
	Hasley Canyon	2.14
	Helm	3.22
	Holser	3.21
	Honor Rancho	3.51
	Huntington Beach	5.37
	Hyperion	1.93
	Inglewood	9.36
	Jacalitos	2.54
	Jasmin	~~16.07~~13.50
	Kern Front	~~28.57~~23.74
	Kern River	~~13.46~~10.10
	Kettleman Middle Dome	3.92
	Kettleman North Dome	4.93
	Landslide	11.14
	Las Cienegas	4.80
	Livermore	2.55
	Lompoc	33.31
	Long Beach	6.48
	Long Beach Airport	4.10
	Los Angeles Downtown	4.39
	Los Angeles, East	8.81
	Lost Hills	~~11.71~~10.75
	Lost Hills, Northwest	4.58
	Lynch Canyon	~~7.83~~7.30
	McDonald Anticline	5.10
	McKittrick	~~20.12~~16.77
	Midway-Sunset	~~26.07~~22.30
	Montalvo, West	2.83
	Montebello	11.64
	Monument Junction	3.56
	Mount Poso	~~15.48~~14.02

	Mountain View	~~5.01~~4.88
	Newhall-Potrero	2.80
	Newport, West	4.00
	Oak Canyon	3.60
	Oak Park	2.27
	Oakridge	2.75
	Oat Mountain	2.11
	Ojai	2.78
	Olive	2.02
	Orcutt	~~12.43~~11.91
	Oxnard	~~16.99~~15.61
	Paloma	3.55
	Placerita	~~48.22~~35.08
	Playa Del Rey	5.60
	Pleito	3.56
	Poso Creek	~~30.04~~25.92
	Pyramid Hills	2.96
	Railroad Gap	5.17
	Raisin City	8.05
	Ramona	3.30
	Richfield	3.97
	Rincon	3.60
	Rio Bravo	5.15
	Rio Viejo	2.86
	Riverdale	3.22
	Rose	2.38
	Rosecrans	5.55
	Rosecrans, South	3.32
	Rosedale	7.41
	Rosedale Ranch	8.86
	Round Mountain	~~31.06~~29.16
	Russell Ranch	7.92
	Salt Lake	2.56
	Salt Lake, South	3.70
	San Ardo	~~33.16~~28.46
	San Miguelito	4.78
	San Vicente	2.40
	Sansinena	2.82
	Santa Clara Avenue	3.48
	Santa Fe Springs	12.46
	Santa Maria Valley	5.06

	Santa Susana	2.86
	Sargent	4.96
	Saticoy	3.45
	Sawtelle	3.00
	Seal Beach	4.98
	Semitropic	3.94
	Sespe	2.84
	Shafter, North	2.77
	Shiells Canyon	3.15
	South Mountain	3.15
	Stockdale	2.12
	Strand	2.56
	Tapia	~~5.62~~5.38
	Tapo Canyon, South	2.94
	Tejon	5.86
	Tejon Hills	6.46
	Tejon, North	3.28
	Temescal	3.00
	Ten Section	6.61
	Timber Canyon	3.12
	Torrance	4.83
	Torrey Canyon	2.82
	Union Avenue	2.05
	Ventura	4.69
	Wheeler Ridge	4.30
	White Wolf	1.83
	Whittier	2.46
	Wilmington	6.82
	Yowlumne	11.96
	Zaca	7.99
US California Sub-Field	Edison Light	5.05
	South Belridge Light	3.77
US Federal OCS	Beta	1.59
	Carpinteria	2.72
	Dos Cuadras	3.92
	Hondo	6.05
	Hueneme	2.80
	Pescado	4.90
	Point Arguello	14.59
	Point Pedernales	6.51
	Sacate	3.47

	Santa Clara	2.36
	Sockeye	6.86

(f) *Refinery Investment Credit Pilot Program*. A refinery may receive credit for reducing greenhouse gas emissions from its facility. Any such credits shall 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 creditgreenhouse gas emissions reduction modification must be submitted during or after the year 2016~~5~~ and must be approved pursuant to this section before the refinery can receive credit. ~~No~~A project is eligible if the authority-to-construct permit was approved afterapplicant applied to any governmental entity for an authority to construct permit relating to the project prior to January 1, 2016~~5~~.

(B) The refinery investment credit projectgreenhouse gas emission reduction modification must occur within the boundaries of the refinerybe either from a capital investment or from the production of CARBOB or diesel fuel that is partially derived from renewable feedstock.

(C) The refinery investment credit projectgreenhouse gas emission reduction modification from a capital investment must achieve a carbon intensity reduction from the comparison baseline of at least 0.1 gCO_2e/MJ. The refinery greenhouse gas emission reduction modification from the production of CARBOB or diesel fuel that is partially derived from renewable feedstock must annually replace a minimum of 10 percent of the fossil based feedstock.

(D) The applicantrefinery greenhouse gas emission reduction modification 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. not result in a net increase of criteria air pollutant or toxic air contaminant emissions, whether from the refinery itself or from offsite sources of these pollutants.

(E) Projects whose primary objectives are refinery equipment shutdowns, reductions in refinery or equipment throughput and refinery maintenance shall not be eligible for section 95489(f).

(F) Credits created pursuant to section 95489(f) may not be sold or transferred to any other party.

(G) Credits generated pursuant to section 95489(f) are subject to limitations set forth in section 95485(d).

(2) *Calculation of Credits.*

(A) Determine total refinery emissions pre-project and post-project as follows:

$$CO_2e_i = (CO_2) + (CH_4)(25) + (N_2O)(298) + electricity + thermal + hydrogen$$

where:

CO_2e_i is the total emissions for data year i in metric tons;

CO_2 is as reported in CCR, title 17, sections 95100 through 95158;

CH_4 is as reported in CCR, title 17, sections 95100 through 95158;

N_2O is as reported in CCR, title 17, sections 95100 through 95158;

$electricity$ is imported electricity minus exported electricity per year converted to tons CO_2e by using 0.431 tons CO_2e/MWh;

$thermal$ is imported thermal energy minus exported thermal energy per year converted to tons CO_2e by using 0.0663 tons CO_2e/MMBtu;

$hydrogen$ is purchased hydrogen multiplied by 10.8 metric tons/ton hydrogen; and

i is the data year pre-project completion or i is the first full data year post-project completion.

(B) Determine the amount of emissions apportioned to each refinery product pre-project and post-project as follows:

$$AE_i^{XD} = \left(\frac{Volume_i^{XD}}{Volume_i^{Total}}\right)(CO_2e_i)$$

where:

AE_i^{XD} is the amount of emissions apportioned to each product XD output of refinery for data year i in metric tons of either CARBOB (XD = "CARBOB") or diesel (XD = "diesel");

CO_2e_i is the total emissions for data year i in metric tons;

i is the data year prior to project completion or i is the first full data year after the project is completed;

$Volume_i^{XD}$ is the volume of individual product output for data year i in barrels (bbl) of either CARBOB (XD = "CARBOB") or diesel (XD = "diesel"); and

$Volume_i^{Total}$ is the total volume of CARBOB and diesel for data year i in bbl.

(C) Determine the the total energy for each refinery product output pre-project and post-project as follows:

$$EC_i^{XD} = \left(Volume_i^{XD}\right)\left(D^{XD}\right)\left(42\ \left(\frac{gal}{bbl}\right)\right)$$

where:

EC_i^{XD} is the total energy for each product output for data year i in MJ of either CARBOB (XD = "CARBOB") or diesel (XD = "diesel");

i is the data year prior to project completion or i is the first full data year after the project is completed;

$Volume_i^{XD}$ is the volume of individual product output in barrels (bbl) of either CARBOB (XD = "CARBOB") or diesel (XD = "diesel"); and

D^{XD} is the energy density listed in Table 3 in MJ/gal of either CARBOB (XD = "CARBOB") or diesel (XD = "diesel").

(D) Determine the carbon intensity of each refinery product pre-project post-project as follows:

$$CI_i^{XD} = \left[\frac{AE_i^{XD}}{EC_i^{XD}}\right]\left(\frac{10^6\ g}{metric\ tons}\right)$$

where:

CI_i^{XD} is the carbon intensity of each refinery product for data year i in gCO_2e/MJ of either CARBOB (XD = "CARBOB") or diesel (XD = "diesel");

AE_i^{XD} = amount of emissions apportioned to each product XD output of refinery in metric tons for data year i;

EC_i^{XD} is the total energy for each product output for data year i in MJ of either CARBOB (XD = "CARBOB") or diesel (XD = "diesel"); and

i is the data year prior to project completion or i is the first full data year after the project is completed.

(E) Determine the reduction in carbon intensity associated with the refinery investment credit project as compared to the refinery without the refinery investment credit project as follows:

$$\Delta CI_{RIC}^{XD} = CI_{pre}^{XD} - CI_{post}^{XD}$$

where:

ΔCI_{RIC}^{XD} is the reduction in carbon intensity (a positive value), in gCO_2e/MJ, associated with the refinery investment credit project as compared to the refinery without the refinery investment credit project;

CI_{pre}^{XD} is the carbon intensity of each refinery petroleum product pre-project in gCO_2e/MJ of either CARBOB (XD = "CARBOB") or diesel (XD = "diesel"); and

CI_{post}^{XD} is the carbon intensity of each refinery petroleum product post-project in gCO_2e/MJ of either CARBOB (XD = "CARBOB") or diesel (XD = "diesel").

(F) Determine the credit for the refinery investment credit project:

$$Credits_{RIC}^{XD} = (\Delta CI_{RIC}^{XD} \times D^{XD} \times V^{XD} \times C)$$

where:

$Credits_{RIC}^{XD}$ is the credit for the refinery investment credit project in metric tons;

ΔCI_{RIC}^{XD} is the reduction in carbon intensity (a positive value), in gCO_2e/MJ, associated with the refinery investment credit project as compared to the refinery without the refinery investment credit project;

D^{XD} is the energy density listed in Table 3 in MJ/gal of either CARBOB (XD = "CARBOB") or diesel (XD = "diesel");

V^{XD} is the volume of either CARBOB (XD = "CARBOB") or diesel (XD = "diesel") in gallons; and

$C = 1.0 \times 10^{-6} \frac{MT}{gCO_2e}$.

~~For CARBOB or diesel fuel that is partially derived from renewable feedstock, the calculation of credits shall be as follows:~~

~~$Credits_{RIC}^{XD} = \left((CI_{Standard}^{XD} - CI_{Renewable}^{XD}) \times E_{Renewable}^{XD} \times C\right)$~~

~~where:~~

~~$Credits_{RIC}^{XD}$ is the credit for the refinery greenhouse gas reduction modification;~~

~~$CI_{Standard}^{XD}$ is the carbon intensity of CARBOB (XD = "CARBOB") or diesel (XD = "diesel"), in gCO_2e/MJ, as set forth in section 95484(b);~~

~~$CI_{Renewable}^{XD}$ is the carbon intensity of the renewable content of the CARBOB (XD = "CARBOB") or diesel (XD = "diesel"), in gCO_2e/MJ, as determined by section 95488(c)(4)(F). The renewable content is the portion of the fuel that is derived from renewable feedstock;~~

~~$E_{Renewable}^{XD}$ is the amount of fuel energy of the renewable content within the CARBOB (XD = "CARBOB") or diesel (XD = "diesel"), in MJ; and~~

~~$C = 1.0 \times 10^{-6} \frac{MT}{gCO_2e}$;~~

~~For greenhouse gas emissions reduction that is from a capital investment, the calculation of credits shall be as follows:~~

~~$Credits_{RIC}^{XD} = (\Delta CI_{RIC}^{XD} \times E^{XD} \times C) \times M$~~

~~where:~~

~~$Credits_{RIC}^{XD}$ is the credit for the refinery greenhouse gas reduction project;~~

~~ΔCI_{RIC}^{XD} is the reduction in carbon intensity (a positive value), in gCO_2e/MJ, associated with the refinery greenhouse gas reduction project as compared to the refinery without the greenhouse gas reduction project;~~

~~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 3;~~

~~$C = 1.0 \times 10^{-6} \frac{MT}{gCO_2e}$;~~

~~M is 0.5 for CI_{post}^{XD} values above the CARBOB or Diesel refinery carbon intensity industry average as determined from Table 12; and~~

~~M is 1.0 for CI_{post}^{XD} values below the CARBOB or Diesel refinery carbon intensity industry average as determined from Table 12.~~

~~Table 12. CARBOB or Diesel Refinery Carbon Intensity Industry Average~~

~~Fuel Type~~	~~Industry Average (g CO_2e/MJ)~~
~~CARBOB~~	~~8.95~~
~~Diesel~~	~~7.61~~

~~$\Delta CI_{RIC}^{XD} = CI_{pre}^{XD} - CI_{post}^{XD}$~~

~~where:~~

~~ΔCI_{RIC}^{XD} is the reduction in carbon intensity (a positive value), in gCO_2e/MJ, associated with the refinery greenhouse gas reduction project as compared to the refinery without the greenhouse gas reduction project;~~

~~CI_{pre}^{XD} is the carbon intensity of each refinery petroleum product pre-project; and~~

~~CI_{post}^{XD} is the carbon intensity of each refinery petroleum product post-project.~~

~~$$CI^{XD} = \left[\frac{AE^{XD}}{EC^{XD}}\right]\left(\frac{10^6 g}{metric\ tons}\right)$$~~

~~where:~~

~~CI^{XD} is the carbon intensity of each refinery product.~~

~~$AE^{XD} = \left(\frac{Volume^{XD}}{Volume^{Total}}\right)(CO_2e_i)$~~

~~where:~~

~~AE^{XD} = amount of emissions apportioned to each product XD output of refinery in metric tons;~~

~~CO_2e_i = total emissions for data year i in metric tons;~~

~~$Volume^{XD}$ = volume of individual product output in barrels (bbl);~~

~~$Volume^{Total}$ = total volume of output product in barrels (bbl).~~

~~$EC^{XD} = (Volume^{XD})(E^{XD})\left(42\left(\frac{gal}{bbl}\right)\right)$~~

~~where:~~

~~EC^{XD} is the total energy for each product output in MJ;~~

~~$Volume^{XD}$ is the volume of individual product output in barrels (bbl);~~

~~E^{XD} is the amount of fuel energy, in MJ/gal, determined from the energy density conversion factors in Table 3.~~

~~$CO_2e_i = (CO_2) + (CH_4)(25) + (N_2O)(298) + electricity + thermal + hydrogen$~~

~~where:~~

~~CO_2 is as reported in CCR, title 17, sections 95100 through 95158;~~

~~CH_4 is as reported in CCR, title 17, sections 95100 through 95158;~~

~~N_2O is as reported in CCR, title 17, sections 95100 through 95158;~~

~~*electricity* is imported electricity minus exported electricity per year converted to tons CO_2e by using 0.431 tons CO_2e/MWh;~~

~~*thermal* is imported thermal energy minus exported thermal energy per year converted to tons CO_2e by using 0.0663 tons CO_2e/MMBtu;~~

~~*hydrogen* is purchased hydrogen*10.8 metric tons/ton hydrogen; and~~

~~*i* is pre- or post-project.~~

(3) *Application Contents and Submittal*. Unless otherwise noted, an application for refinery investment credits shall comply with the following requirements:

(A) An application must contain the following summary material:

1. A complete description of the refinery investment credit project~~greenhouse gas emissions reduction modification~~ and how emissions are reduced;

2. ~~For CARBOB or diesel fuel that is partially derived from renewable feedstock, purchase records identifying the renewable feedstock. For capital investments, a~~An engineering drawing(s) or process flow diagram(s) that illustrates the project~~investment~~ and clearly identifies the system boundaries, relevant process equipment, mass flows, and energy flows necessary to calculate the refinery investment credits; and

3. A preliminary estimate of the refinery investment credit, calculated as required in section 95489(f)(2), including descriptions and copies of production and operational data or 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.~~; and~~

(B) An application shall include a list of references covering all information sources used in the calculation of refinery investment credit. The reference list shall, at a minimum, identify the author(s), the author's affiliation, title of the referenced document, the publisher, and the publication date. All in-text parenthetical citations shall correspond to complete publication information provided in the list of references, and provide 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 visited.

(C) 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 refinery investment credit project ~~greenhouse gas emissions reduction modification~~ described in the application packet. The transmittal letter shall 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.

(D) All documents (including spreadsheets and other items not in a standard document format) that are claimed 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 posting to a public LCFS web site. Specific redactions must be replaced with the phrase “Confidential business information has been deleted by the applicant.” This phrase must be displayed clearly wherever CBI has been redacted. If applicant claims that information it submits is confidential, it must also provide contact information required in section 91011.

(E) An application shall 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 shall 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~~E~~) 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 state board determines the information is subject to disclosure.

(G~~F~~) An application, supporting documents, and all other relevant data or calculation or other documentation, except for the transmittal letter described in section 95489(f)(3)(C), shall be submitted electronically, such as via e-mail or an online-based interface, 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 refinery investment credit project ~~greenhouse gas emissions reduction modification~~ 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 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(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) 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 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) 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 refinery investment credit project. ~~greenhouse gas emissions reduction modification.~~ 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~~modification~~. 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 shall be identified.

(5) *Credit Review*. Each refinery that has an approved refinery investment credit must solicit Executive Officer review and re-approval of the credit every three years.

(A) Refineries shall submit process and emissions data to the Executive Officer for review and approval that confirm the greenhouse gas emission reductions estimated in the original submittal pursuant to the process in sections 95489(f)(3) and (4). Failure to submit data for review every three years will result in automatic revocation of the refinery investment credit henceforth.

(B) ~~For capital investment projects, w~~When the Executive Officer determines that the carbon intensity reduction from refinery investment credits has decreased ~~by 10 percent or more~~ from the original reduction, the refinery investment credit shall be adjusted to reflect the new credit henceforth. If a revised carbon intensity reduction drops below 0.1 gCO_2e/MJ compared to the refinery's baseline without the refinery investment credit~~greenhouse gas reduction~~ project, the refinery investment credit shall be canceled henceforth.

~~(C) When the Executive Officer determines that the refinery greenhouse gas emission reduction modification from the production of CARBOB or diesel fuel that is partially derived from renewable feedstock did not replace an annual minimum of 10 percent of the fossil based feedstock, or 30 percent of the fossil based feedstock in at least one year, the refinery investment credit shall be canceled.~~

(6) *Recordkeeping*. For each approved refinery investment credit project~~greenhouse gas emissions reduction modification~~, the refinery must compile and retain records pursuant to section 95491(b) showing compliance with all limitation and recordkeeping requirements identified by the Executive Officer pursuant to section 95489(f)(4)(C), above.

(g) *Renewable Hydrogen Refinery Credit Pilot Program.* A refinery may receive credit for greenhouse gas emission reductions from the production of CARBOB or diesel fuel that is partially derived from renewable hydrogen. Any such credits shall 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 renewable hydrogen refinery credit must be submitted during or after the year 2016 and must be approved pursuant to this section before the refinery can receive credit.

(B) In order to receive a renewable hydrogen refinery credit, a refiner must produce CARBOB or diesel fuel that is partially derived from renewable hydrogen. The renewable hydrogen must annually replace a minimum of one percent of all fossil hydrogen in the production of CARBOB or diesel fuel.

(C) 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.

(D) Credits created pursuant to Section 95489(g) may not be sold or transferred to any other party.

(E) Credits generated pursuant to Section 95489(g) are subject to limitations set forth in Section 95485(d).

(2) *Calculation of Credits.*

(A) For CARBOB or diesel fuel that is partially derived from renewable hydrogen, the calculation of credits shall be as follows:

$$Credits^{H}_{RIC} = \left((CI^{H}_{Fossil} - CI^{H}_{Renewable}) \times D^{H}_{Renewable} \times V^{H}_{Renewable} \times C \right)$$

where:

$Credits^{H}_{RIC}$ is the amount of LCFS credits generated (a zero or positive value), in metric tons, by renewable hydrogen;

CI^{H}_{Fossil} is carbon intensity requirement of fossil hydrogen in gCO_2e/MJ from Table 6 for Hydrogen with the pathway identifier HYGN003;

$CI^{H}_{Renewable}$ is the carbon intensity of the renewable hydrogen in gCO_2e/MJ, as determined by section 95488(c)(4)(F);

$D^{H}_{Renewable}$ is the energy density of hydrogen listed in Table 3 in MJ/kg;

$V^{H}_{Renewable}$ is the volume of renewable hydrogen in kg; and

$C = 1.0 \times 10^{-6} \frac{MT}{gCO_2e}$.

(3) *Application Contents and Submittal*. Unless otherwise noted, an application for renewable hydrogen credits shall 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(g)(2), including descriptions and copies of production and operational data or 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 shall include a list of references covering all information sources used in the calculation of renewable hydrogen refinery credit project. The reference list shall, at a minimum, identify the author(s), the author's affiliation, title of the referenced document, the publisher, and the publication date. All in-text parenthetical citations shall correspond to complete publication information provided in the list of references, and provide 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 visited.

(C) An application shall 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 shall 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.

(D) All documents (including spreadsheets and other items not in a standard document format) that are claimed 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 posting to a public LCFS web site. Specific redactions must be replaced with the phrase “Confidential business information has been deleted by the applicant.” This phrase must be displayed clearly wherever CBI has been redacted. If applicant claims that information it submits is confidential, it must also provide contact information required in section 91011.

(E) An application shall 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 shall 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, except for the transmittal letter described in section 95489(g)(3)(C), shall be submitted electronically, such as via e-mail or an online-based interface, 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 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(g) 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(g), 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(g), the application will not be approved, and the applicant will be notified in writing, and the basis for the disapproval shall be identified.

(5) *Credit Review*. Each refinery that has an approved renewable hydrogen credit project must solicit Executive Officer review and re-approval of the crediting project on an annual basis.

(A) Refineries shall submit all relevant data to the Executive Officer for review and approval that confirm the renewable hydrogen replacement amount of fossil hydrogen in production of CARBOB and diesel fuel estimated in the original submittal pursuant to the process in sections 95489(g)(3) and (4). Failure to submit data for review annually will result in automatic revocation of the renewable hydrogen credit henceforth.

(B) When the Executive Officer determines that the renewable hydrogen that has replaced fossil based hydrogen for the production of CARBOB or diesel fuel has decreased from the amount estimated in the original submittal pursuant to the process in sections 95849(g)(3) and (4), the renewable hydrogen refinery credit shall be adjusted to reflect the new credit henceforth. If the renewable hydrogen drops below the minimum threshold of one percent of the fossil hydrogen replaced with renewable hydrogen in the production CARBOB or diesel fuel, then the renewable hydrogen refinery credit shall be cancelled henceforth.

(6) *Recordkeeping*. For each approved renewable hydrogen refinery credit project, the refinery must compile and retain records pursuant to section 95491(b) showing compliance with all limitation and recordkeeping requirements identified by the Executive Officer pursuant to section 95489(g)(4)(C), above.

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43000.5, 43013~~ 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. [Reserved.]~~Requirements for Multimedia Evaluation~~

~~(a) *Pre-Sale Approval Requirement.* Except as provided for in section 95490, a regulated party must not sell, supply, distribute, import, offer for sale, or offer for use in California a regulated fuel unless one of the following conditions has first been met:~~

~~(1) a multimedia evaluation for the regulated fuel has been conducted pursuant to the requirements specified in this regulation, and that evaluation has been approved by the Executive Officer; or~~

~~(2) a multimedia evaluation for the regulated fuel has been conducted, and that evaluation was approved by the Executive Officer prior to the date the Office of Administrative Law (OAL) approves the LCFS regulation.~~

~~(b) *Requirements.*~~

~~(1) The Executive Officer, or his or her designee, shall not approve a multimedia evaluation subject to this section 95490 unless the evaluation has undergone the process for review and approval specified in H&S section 43830.8, including but not limited to, receiving peer review and approval by the California Environmental Policy Council pursuant to H&S section 43830.8(d) through (g). For purposes of H&S section 43830.8(a), each Executive Officer approval of a regulated fuel for compliance with the LCFS regulation under section 95490 shall constitute compliance with the requirement in H&S section 43830.8(a) for conducting a multimedia evaluation prior to adoption of a "regulation that establishes a specification for motor vehicle fuel."~~

~~(2) All multimedia evaluations subject to this section 95490 shall be evaluated in accordance with the California Environmental Protection Agency (Cal/EPA) guidance document entitled, *Guidance Document and Recommendations on the Types of Scientific Information Submitted by Applicants for California Fuels Environmental Multimedia Evaluations*, Chapters V, VI, and VII (June 2008), which is incorporated by reference and can be downloaded at http://www.arb.ca.gov/fuels/multimedia/080608guidance.pdf.~~

~~(c) *Exemptions.*~~

(1) *Negative Declaration For ARB-Adopted New Or Amended Fuel Specifications*. The requirements of this section 95490 do not apply to a regulated fuel if:

(A) the regulated fuel is subject to a proposed ARB regulation establishing a new or amending an existing fuel specification, which ARB adopts after the date OAL approves the LCFS regulation; and

(B) the California Environmental Policy Council, following an initial evaluation of the proposed regulation, conclusively determines that the regulation will not have any significant adverse impact on public health or the environment.

(2) *CaRFG, Diesel Fuel, E100, E85, CNG, LPG, and Hydrogen*. The requirements of this section 95490 do not apply to a regulated fuel if:

(A) the fuel is subject to an ARB-adopted fuel specification; and

(B) the Executive Officer does not amend that fuel specification after OAL approves the LCFS regulation.

Fuels subject to this section 95490 include CaRFG, diesel fuel, E100, E85, CNG, LPG, and hydrogen. The exemption applies only to the extent that the Executive Officer does not amend the fuel specification for any of the above fuels. When OAL approves an ARB amendment to a fuel specification identified above, the exemption shall no longer apply for that fuel.

(3) *Biomass-Based Diesel and Electricity*. The requirements of this section 95490 do not apply to a regulated fuel that:

(A) is subject to the Division of Measurement Standards' Engine Fuels Standards (Cal. Code Regs., tit. 4, §§ 4140 et seq.); but

(B) is not subject to an ARB-adopted fuel specification.

Fuels subject to this section 95490 formerly include biomass-based diesel and electricity. The exemption applies only to the extent that the Executive Officer does not adopt a fuel specification for any of the above fuels. When OAL approves an ARB-adopted fuel specification for a fuel identified above, the exemption shall no longer apply for that fuel.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 43000.5, 43013 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).~~

§ 95491. Reporting and Recordkeeping.

(a) *Reporting Requirements.*

(1) *Reporting Frequency*. A reporting party as defined in section 95481 must submit to the Executive Officer quarterly progress reports and annual compliance reports, as specified in this section. The data for the quarterly reports must be uploaded in the LRT-CBTS within the first 45 days after the end of the quarter. During the subsequent~~second~~ 45 days, reporters shall use the reconciliation reports provided in the LRT-CBTS and in conjunction~~must work~~ with counterparties ~~to~~ complete any necessary report corrections. The reporting frequencies for these reports are set forth below:

(A) *Quarterly Reports.* Unless expressly provided elsewhere in this subarticle, ~~Q~~quarterly reports must be submitted to the Executive Officer 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 covering October through December.

~~All data reflecting any transaction with another party shall be uploaded into the LRT-CBTS 45 days before the above due dates for Quarterly Reports. During the remaining 45 days preceding final submission, reporting parties must work in good faith with their counterparties to resolve any fuel transaction discrepancies between the parties' respective reported transactions.~~

* * * * *

(3) *General and Specific Reporting Requirements for Quarterly Reports*. For each of its transportation fuels, a reporting party must submit a quarterly report that contains the information specified in Table 11~~3~~ and meets the additional specific requirements set forth below:

* * * * *

(B) *Specific Quarterly Reporting Parameters (Except as Otherwise Noted) for Gasoline and Diesel Fuel.*

1. Production ~~c~~Company ID and ~~f~~Facility ID for each blendstock. CARBOB and diesel fuel are exempt from this requirement.

* * * * *

(C) *Specific Quarterly Reporting Parameters for Natural Gas (including CNG, LNG, and L-CNG).* For each private access, public access, or home fueling facility to which CNG, LNG, and L-CNG, is supplied as a transportation fuel:

* * * * *

5. For Bio-CNG, Bio-LNG, and Bio-L-CNG: Biomethane production ~~c~~Company ID and ~~f~~Facility ID.

(D) *Specific Quarterly Reporting Parameters for Electricity used as a Transportation Fuel*.

1. The total electricity dispensed (in kWh) to vehicles at residences. Notwithstanding section 95486(a)(2), for periods beginning January 1, 2015, ~~R~~residential charging may be measured by:

   a. the use of ~~direct~~ metering ~~(either submetering or separate metering)~~ to measure the electricity directly dispensed to all vehicles at each residence; or

   b. for households and residences ~~only~~ where ~~direct~~sufficient metering ~~has not been installed~~is not available, ~~the reporting party may report the total electricity dispensed as a transportation fuel at each residence using another method that the reporting party demonstrates to the Executive Officer's satisfaction is substantially similar to the use of direct metering.~~the Executive Officer will annually calculate the number of credits due to any Electrical Distribution Utility that has opted into the LCFS. The Executive Officer shall use the following method:

$$PEV\ Electricity\ Use^{Non\ metered} = Number\ of\ Vehicles^{Non\ metered} \times Daily\ Average\ PEV\ Electricity\ Use \times Number\ of\ days^{in\ compliance\ period}$$

where:

$PEV\ Electricity\ Use^{Non\ metered}$ is the total estimated electricity use of non-metered residential plug-in electrical vehicles (PEV) within a given Electrical Distribution Utility service area for the current compliance period;

$Number\ of\ Vehicles^{Non\ metered}$ is the number of non-metered residential PEV within a given Electrical Distribution Utility service area for the current compliance period;

$Daily\ Average\ PEV\ Electricity\ Use$ shall be based upon the best available data regarding daily electricity use of residential PEV for the current compliance period;

$Number\ of\ days^{in\ compliance\ period}$ is the total number of days in the current compliance period.

c. On or before January 31st of each year, any Electrical Distribution Utility that has opted into the program shall provide the Executive Officer data relevant to the calculation of credits for the prior year. The Executive Officer shall use the method set forth in this section to calculate any credits generated for the prior year and place them into the Electrical Distribution Utility's LRT-CBTS account at least 30 days prior to the annual reporting deadline. Reporting information pursuant to 95491(a)(3)(D), paragraphs b. and c. is exempted from the quarterly reporting deadlines set forth in section 94891(a)(1)(A).

* * * * *

7. For the electric forklifts located in each Electrical Distribution Utility service area, ~~the amount of estimated electricity provided by Air Resources Board staff annually (in kWh).~~ the annual electricity used (in kWh), as estimated by Air Resources Board staff each year. An Electrical Distribution

Utility's report of electricity used by electric forklifts is exempted from the quarterly reporting deadlines set forth in section 94891(a)(1)(A).

(E) *Specific Quarterly Reporting Parameters for Hydrogen or a Hydrogen Blend Used as a Transportation Fuel.*

* * * * *

3. For hydrogen fuel cell forklifts, the amount of fuel dispensed (in kg).

4~~3~~. The carbon intensity value of the hydrogen or the blendstocks used to produce the hydrogen blend determined pursuant to section 95488.

5~~4~~. Production ~~c~~Company ID and ~~f~~Facility ID.

* * * * *

(5) *Significant Figures*. The regulated party must report the following quantities as specified below:

(A) carbon intensity, expressed to the same number of significant figures as shown in Tables 6, 7, and 8~~the carbon intensity lookup table (Method 1)~~;

(B) credits or deficits, expressed to the nearest whole metric ton CO_2 equivalent;

* * * * *

(7) *Correcting a Previously Submitted Report.* A regulated party may request to have ~~a~~ previously submitted quarterly ~~or annual~~ reports for the current compliance period reopened for corrective edits and resubmittal~~. The regulated party must~~by submitting a~~n Unlock Report~~ Correction Request Form online in the LRT-CBTS. The regulated party is required to provide justification for the report corrections and indicate the specific corrections to be made to the report. Each submitted request is subject to Executive Officer review and approval. Permission to correct a report does not preclude enforcement based on misreporting.

Table 113. Summary Checklist of Quarterly and Annual Reporting Requirements.

Parameters to Report	*Gasoline & Diesel Fuel*	*CNG & LNG*	*Electricity*	*Hydrogen or Hydrogen Blends*	*Neat Ethanol or Biomass-Based Diesel Fuels or Other Alternative Fuels*
Company or Organization Name	x	x	x	x	x
Reporting Period	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	x	x	x	x	x
Production Company ID and Facility ID	x**	x**	n/a	x	x
Fuel Transport Mode	x	x	x	x	x
Aggregated Indicator ~~Transaction~~ (T/F)	x	x	~~x~~	x	x
Fuel Application/EER	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 replacement	n/a	x	x	x	x
Amount of each fuel used as diesel fuel replacement	n/a	x	x	x	x
***Credits/deficits generated per quarter (MT)	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
For Annual Reporting (in addition to the items above)					
***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 party (MT), if any	x	x	x	x	x

Parameters to Report	*Gasoline & Diesel Fuel*	*CNG & LNG*	*Electricity*	*Hydrogen or Hydrogen Blends*	*Neat Ethanol or Biomass-Based Diesel Fuels or Other Alternative Fuels*
***Credits sold to another party (MT), if any	x	x	x	x	x
***Credits exported to another program (MT), if any	x	x	x	x	x
***Credits retired within LCFS (MT) to meet compliance obligation , if any	x	x	x	x	x

** Same as Title Transfer Date; For Aggregated Transactions enter the last day of the reporting period*
*** Does not apply to CARBOB, Diesel Fuel or Fossil NG*
**** Value will be calculated, stored and displayed in the LRT-CBTS.*

Table 12. Annual Compliance Calendar.

January 31	Electrical Distribution Utility that has opted into LCFS provide ARB data relevant to the calculation of credits for the prior year.
February 14	Upload all Q4 transactions in LRT-CBTS and begin any needed reconciliation with counterparties
March 31	Submit final Q4 report
March 31	ARB calculate credits generated by Electrical Distribution Utility (EDU)for the prior year and place them into EDU's LRT-CBTS account
April 30	Submit final Annual Report for preceding year; demonstrate compliance; voluntary pledge of credits into Credit Clearance Market (CCM)
May 15	Upload all Q1 transactions in LRT-CBTS and begin any needed reconciliation with counterparties
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 report
July 31	CCM for prior year closes
August 14	Upload all Q2 transactions in LRT-CBTS and begin any needed reconciliation with counterparties
August 31	CCM purchasers submit amended Annual Report

September 30	Submit final Q2 report
November 14	Upload all Q3 transactions in LRT-CBTS and begin any needed reconciliation with counterparties
December 31	Submit final Q3 report

* * * * *

(c) *Documenting Fuel Transfers.*

(1) A product transfer document provided by a reporting party pursuant to section 95483 must prominently state the information specified below.

(A) For transfers where an LCFS obligation is being passed to the transferee:

* * * * *

7. Fuel Production Company ID and Facility ID as registered with RFS2 program or LCFS program. This does not apply to CARBOB, Diesel Fuel or Fossil NG.

(B) For transfers where the LCFS obligation was retained by the transferor, the following is to be provided to the transferee and passed along to any subsequent owner or supplier:

1. All information identified in 94591(c)(1)(A) as items 1. through 7.;

* * * * *

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43000.5, 43013~~ 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.

* * * * *

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43000.5, 43013~~ 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.

* * * * *

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, ~~43000.5, 43013~~ 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) ARB 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, ARB shall consider all relevant circumstances, including the criteria in Health and Safety Code section 43031.

(b) ~~Penalties may be assessed for each day of any violation of this subsection.~~ Each day or portion thereof that any report required by this subarticle~~section~~ remains unsubmitted, incomplete, or inaccurate constitutes a separate violation ~~of this article~~. For purposes of this subsection, "report" means any submittal to the Executive Officer or made in the LRT-CBTS ~~under this subsection~~.

(c) ~~Failure to demonstrate compliance at the end of a compliance period or carry-over all deficits pursuant to section 95485(c) constitutes a separate violation for each day within the compliance period. Alternatively, e~~Each deficit that is not eliminated at the end of a compliance period or carried over as permitted~~required~~ by section 95485~~(c)~~ constitutes a separate day of violation ~~of this subarticle for purposes of determining penalties pursuant to Health and Safety Code section 38580(b)(3)~~, subject to a penalty not to exceed $1000 per deficit.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, ~~43000.5, 43013~~ 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, or Modify.

* * * * *

(b) *Determination that a Credit, Deficit Calculation, or Approved CI is Invalid.*

(1) *Basis for Invalidating.* The Executive Officer may modify or delete an Approved CI and invalidate credits or recalculate deficits based on any of the following:

* * * * *

(G) 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, 95489, or resulting from any transaction or other activity reported in the LRT-CBTS.

* * * * *

NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43000.5, 43013~~ 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. Regulation Review.

As provided in this section, the Executive Officer shall review the implementation of the LCFS program and present his findings to the Board in a progress report by July 30, 2017 and a full program review by January 1, 2019.

(a) The 2017 progress report shall include, at a minimum, consideration of the following areas:

(1) The LCFS program's progress against LCFS targets, including any appropriate comparisons to prior scenarios produced by staff and external parties;
(2) The availability and use of ultra-low carbon fuels to achieve the LCFS standards; and
(3) The program benefits provided by the following provisions:

(A) credits for producing crudes using innovative methods,
(B) low-complexity/low-energy-use refinery credits;
(C) refinery investment credits, including a review of the use of the provision, the types of actions generating credits, the number of credits generated, and any associated potential benefits as well as potential disbenefits associated with the provision;
(D) renewable hydrogen refinery credits; and
(E) incremental deficits that result from increases in the carbon intensity of crude oil.

(~~a~~b) The 2019 review shall include, at a minimum, consideration of the following areas:

* * * * *

(3) The availability and use of ultra-low carbon fuels to achieve the LCFS standards~~ and advisability of establishing additional mechanisms to incentivize higher volumes of these fuels to be used~~;

* * * * *

(5) An assessment of the air quality impacts on California associated with the implementation of the LCFS to date; and whether the use of the fuel in the State will affect progress towards achieving State or federal air quality standards, or results in any significant changes in toxic air contaminant emissions; and recommendations for mitigation to address adverse air quality impacts identified;

* * * * *

(~~b~~c) The Executive Officer shall solicit comments and evaluations from the public on the ARB staff's assessments of the areas and elements specified in subsection (a) and (b) above, as well as on other topics relevant to the progress report and program review.

(~~c~~d) In presenting the results, the Executive Officer shall propose any amendments or such other action as the Executive Officer determines is warranted.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, ~~43000.5, 43013~~ 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).

§ 95497. Severability.

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NOTE: Authority cited: Sections 38510, 38530, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43000.5, 43013~~ 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).