

MODIFIED REGULATION ORDER

Note: Shown below are the modifications to the originally proposed regulatory language set forth in Appendix A to the Staff Report: Initial Statement of Reasons, released March 5, 2009. This document is printed in a style to indicate changes from the originally proposed regulatory language. All originally proposed regulatory language was indicated by plain type. The proposed modifications released on July 20, 2009 are shown in underline to indicate additions to the original proposal and ~~striketrough~~ to indicate deletions. The proposed modifications released in this September 2009 modified regulation are shown in double underline to indicate additions to the July 20, 2009 modified proposal, and ~~double striketrough~~ to indicate deletions.

Adopt new sections 95480, 95480.1, 95481, 95482, 95483, 95484, 95485, 95486, 95487, 95488, ~~and 95489,~~ and 95490, title 17, California Code of Regulations (CCR), to read as follows:

Subchapter 10. Climate Change

Article 4. Regulations to Achieve Greenhouse Gas Emission Reductions

Subarticle 7. Low Carbon Fuel Standard

Section 95480. Purpose

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

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, 43043, ~~and 43048,~~ Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, 43043, ~~and 43048,~~ Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95480.1. Applicability

(a) *Applicability of the Low Carbon Fuel Standard.*

Except as provided in this section, the California Low Carbon Fuel Standard regulation, title 17, California Code of Regulations (CCR), sections 95480 through 95490 (collectively referred to as the "LCFS") applies to any transportation fuel, as defined in section 95481, that is sold, supplied, or offered for sale in California, and to any person who, as a regulated party defined in section 95481 and specified in section 95484(a), is responsible for a

transportation fuel in a calendar year. The types of transportation fuels to which the LCFS applies include:

- (1) California reformulated gasoline (“gasoline” or “CaRFG”);
- (2) California diesel fuel (“diesel fuel” or “ULSD”);
- (3) Fossil compressed natural gas (“Fossil CNG”) or fossil liquefied natural gas (“Fossil LNG”);
- (4) Biogas CNG or biogas LNG;
- (5) Electricity;
- (6) Compressed or liquefied hydrogen (“hydrogen”);
- (7) A fuel blend containing hydrogen (“hydrogen blend”);
- (8) A fuel blend containing greater than 10 percent ethanol by volume;
- (9) A fuel blend containing biomass-based diesel;
- (10) Denatured fuel ethanol (“E100”);
- (11) Neat biomass-based diesel (“B100”); and
- (12) Any other liquid or non-liquid fuel.

The provisions and requirements in section 95484(c), (d) and (e) apply starting January 1, 2010. All other provisions and requirements of the LCFS regulation apply starting January 1, 2011.

(b) *Credit Generation Opt-In Provision for Specific Alternative Fuels.*

Each of the following alternative fuels is presumed to have a full fuel-cycle, carbon intensity that meets the compliance schedules set forth in section 95482(b) and (c) through December 31, 2020. With regard to an alternative fuel listed below, the regulated party for the fuel must meet the requirements of the LCFS regulation only if the regulated party elects to generate LCFS credits:

- (1) Electricity;
- (2) Hydrogen;
- (3) A hydrogen blend;
- (4) Fossil CNG derived from North American sources;
- (5) Biogas CNG; and
- (6) Biogas LNG.

(c) *Exemption for Specific Alternative Fuels.* The LCFS regulation does not apply to an alternative fuel that meets the criteria in either (c)(1) or (2) below:

- (1) An alternative fuel that:
 - (A) is not a biomass-based fuel; and
 - (B) is supplied in California by all providers of that particular fuel for transportation use at an aggregated volume of less than 420 million MJ (3.6 million gasoline gallon equivalent) per year;

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

- (2) Liquefied petroleum gas (LPG or "propane").
- (d) *Exemption for Specific Applications.* The LCFS regulation does not apply to any transportation fuel used in the following applications:
- (1) Aircraft;
 - (2) Racing vehicles, as defined in H&S section 39048;
 - (3) Military tactical vehicles and tactical support equipment, as defined in title 13, CCR, § section 1905(a) and title 17, CCR, section § 93116.2(a)(36), respectively;
 - (4) Locomotives not subject to the requirements specified in title 17, CCR, § section 93117; and
 - (5) Ocean-going vessels, as defined in title 17, CCR, § section 93118.5(d). This exemption does not apply to recreational and commercial harbor craft, as defined in title 17, CCR, § section 93118.5(d).
- (e) Nothing in this LCFS regulation (title 17, CCR, §-95480 et seq.) may be construed to amend, repeal, modify, or change in any way the California reformulated gasoline regulations (CaRFG, 13 CCR §2260 et seq.), the California diesel fuel regulations (13 CCR §2281-2285 and 17 CCR §93114), or any other applicable State or federal requirements. A person, including but not limited to the regulated party as that term is defined in the LCFS regulation, who is subject to the LCFS regulation or other State and federal regulations shall be solely responsible for ensuring compliance with all applicable LCFS requirements and other State and federal requirements, including but not limited to the CaRFG requirements and obtaining any necessary approvals, exemptions, or orders from either the State or federal government.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43043, and 43048~~, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, ~~43043, and 43048~~, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95481. Definitions and Acronyms

- (a) *Definitions.* For the purposes of sections 95480 through 95489, the definitions in Health and Safety Code sections 39010 through 39060 shall apply, except as otherwise specified in this section, section 95480.1, or sections 95482 through 95489:
- (1) “Alternative fuel” means any transportation fuel that is not CaRFG or a diesel fuel, including but not limited to, those fuels specified in section 95480.1(a)(3) through (a)(12).
 - (2) “B100” means biodiesel meeting ASTM D6751-08 (October 1, 2008) (*Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels*), which is incorporated herein by reference.
 - (3) “Biodiesel” means 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 CFR part 79;
 - (B) A mono-alkyl ester;
 - (C) Meets ASTM D 6751-08 (October 1, 2008), (*Standard Specification for Biodiesel Fuel Blendstock (B100) for Middle Distillate Fuels*);
 - (D) Intended for use in engines that are designed to run on conventional diesel fuel; and
 - (E) Derived from nonpetroleum renewable resources.
 - (4) “Biodiesel Blend” means a blend of biodiesel and diesel fuel containing 6% (B6) to 20% (B20) biodiesel and meeting ASTM D7467-08 (October 1, 2008), (*Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to 20)*), which is incorporated herein by reference.
 - (5) “Biogas (also called biomethane) means natural gas that meets the requirements of 13 CCR §2292.5 and is ~~derived~~ produced from the breakdown of organic material in the absence of oxygen. Biogas is produced in processes including, but not limited to, anaerobic digestion, anaerobic decomposition, and thermo-chemical decomposition. These processes are applied to biodegradable biomass materials, such as manure, sewage, municipal solid waste, green waste, and waste from energy crops, to produce landfill gas, digester gas, and other forms of biogas. ~~of agricultural waste, animal waste, or other biomass.~~
 - (6) “Biogas CNG” means CNG consisting solely of compressed biogas.

- (7) "Biogas LNG" means LNG consisting solely of liquefied biogas.
- (8) "Biomass" has the same meaning as defined in "Renewable Energy Program: Overall Program Guidebook," 2nd Ed., California Energy Commission, Report No. CEC-300-2007-003-ED2-CMF, January 2008, which is incorporated herein by reference.
- (9) "Biomass-based diesel" means a biodiesel (mono-alkyl ester) or a renewable diesel that complies with ASTM D975-08ae1, (edited December 2008), ~~(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.
- (10) "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 GREET. A blendstock that is used directly as a transportation fuel in a vehicle is considered a finished fuel.
- (11) "Carbon intensity" means the amount of lifecycle greenhouse gas emissions, per unit of energy of fuel delivered, expressed in grams of carbon dioxide equivalent per megajoule (gCO₂E/MJ).
- (12) "Compressed Natural Gas (CNG)" means natural gas that has been compressed to a pressure greater than ambient pressure and meets the requirements of 13 CCR §2292.5.
- (13) "Credits" and "deficits" means the measures used for determining a regulated party's compliance with the average carbon intensity requirements in sections 95482 and 95483. Credits and deficits are denominated in units of metric tons of CO₂E, and are calculated pursuant to section 95485(a).
- (14) "Diesel Fuel" (also called conventional diesel fuel) has the same meaning as specified in 13 CCR §2281(b).
- (15) "Diesel Fuel Blend" means a blend of diesel fuel and biodiesel containing no more than 5% (B5) biodiesel by weight and meeting ASTM D975-08ae1, (edited December 2008), Specification for Diesel Fuel Oils, which is incorporated herein by reference.
- (16) "E100," also known as "Denatured Fuel Ethanol," means nominally anhydrous ethyl alcohol meeting ASTM D4806-08 (July 1, 2008), ~~(Standard Specification for Denatured Fuel Ethanol for Blending with~~

Gasolines for Use as Automotive Spark-Ignition Engine Fuel, which is incorporated herein by reference.

- (17) “Executive Officer” means the Executive Officer of the Air Resources Board, or his or her designee.
- (18) “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.
- (19) “Finished fuel” means a fuel that is used directly in a vehicle for transportation purposes without requiring additional chemical or physical processing.
- (20) “Fossil CNG” means CNG that is derived solely from petroleum or fossil sources, such as oil fields and coal beds.
- (21) “HDV” means a heavy-duty vehicle that is rated at 14,001 or more pounds gross vehicle weight rating (GVWR).
- (22) “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.
- (23) “Import” means to bring a product from outside California into California.
- (24) “Importer” means the person who owns an imported product when it is received at the import facility in California.
- (25) “Import facility” means, with respect to any imported liquid product, the storage tank in which the product was first delivered from outside California into California, including, in the case of liquid product imported by cargo tank and delivered directly to a facility for dispensing the product into motor vehicles, the cargo tank in which the product was imported.
- (26) “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 95484(c).
- (27) “LDV & MDV” means a vehicle category that includes both light-duty (LDV) and medium-duty vehicles (MDV).
 - (A) “LDV” means a vehicle that is rated at 8500 pounds or less GVWR.
 - (B) “MDV” means a vehicle that is rated between 8501 and 14,000 pounds GVWR.

- (28) “Lifecycle 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 lifecycle, 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.
- (29) “Liquefied Natural Gas (LNG)” means natural gas that has been liquefied and meets the requirements of 13 CCR §2292.5.
- (30) “Liquefied petroleum gas (LPG or propane)” has the same meaning as defined in Vehicle Code section 380.
- (301) “Motor vehicle” has the same meaning as defined in section 415 of the Vehicle Code.
- (342) “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. As an example, a plug-in hybrid hydrogen ICEV uses both electricity and hydrogen as the fuel source and can be “refueled” using two separately distinct fueling ports.
- (323) “Multimedia evaluation” has the same meaning as specified in H&S §43830.8(b) and (c).
- (334) “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.
- ~~(34) “Oil Sands” means sands that are naturally occurring mixtures of sand or clay, water and an extremely dense and viscous form of petroleum called bitumen. They are found in large amounts in many countries throughout the world, but are found in extremely large quantities in Canada and Venezuela.~~
- ~~(35) “Oil Shale” means fine-grained sedimentary rock that contains significant amounts of kerogen (a solid mixture of organic chemical compounds), from which liquid hydrocarbons can be extracted by distillation or other means.~~

- (365) "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.
- (376) "Producer" means, with respect to any liquid fuel, the person who owns the liquid fuel when it is supplied from the production facility.
- (387) "Production facility" means, with respect to any liquid fuel (other than LNG), a facility in California at which the fuel is produced. "Production facility" means, with respect to natural gas (CNG, LNG or biogas), a facility in California at which fuel is converted, compressed, liquefied, refined, treated, or otherwise processed into CNG, LNG, biogas, or biogas-natural gas blend that is ready for transportation use in a vehicle without further physical or chemical processing.
- (3938) "Public access fueling facility" means a fueling facility that is not a private access fueling dispenser.
- (4039) "Regulated party" means a person who, pursuant to section 95484(a), must meet the average carbon intensity requirements in section 95482 or 95483.
- (440) "Renewable diesel" means a motor vehicle fuel or fuel additive ~~which~~ 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.
- (421) "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. A dedicated fuel vehicle has one fueling port onboard the vehicle. Examples include BEV, E85 FFV, vehicles running on a biomass-based diesel blend, and grid-independent hybrids such as a Toyota Prius.®
- (432) "Transportation fuel" means any fuel used or intended for use as a motor vehicle fuel or for transportation purposes in a nonvehicular source.
- (b) *Acronyms.* For the purposes of sections 95480 through 95489, the following acronyms apply.

- (1) "ASTM" means ASTM International.
- (2) "BEV" means battery electric vehicles.
- (3) "CARBOB" means California reformulated gasoline blendstock for oxygenate blending
- (4) "CaRFG" means California reformulated gasoline.
- (5) "CEC" means California Energy Commission.
- (6) "CFR" means code of federal regulations.
- (7) "CI" means carbon intensity.
- (8) "CNG" means compressed natural gas.
- (9) "EER" means energy economy ratio.
- (10) "FCV" means fuel cell vehicles.
- (11) "FFV" means flex fuel vehicles.
- (12) "gCO₂E/MJ" means grams of carbon dioxide equivalent per mega joule.
- (13) "GREET" means the Greenhouse gases, Regulated Emissions, and Energy use in Transportation model.
- (14) "GVRW" means gross vehicle weight rating.
- (15) "HDV" means heavy-duty vehicles.
- (16) "ICEV" means internal combustion engine vehicle.
- (17) "LCFS" means Low Carbon Fuel Standard.
- (18) "LDV" means light-duty vehicles.
- (19) "LNG" means liquefied natural gas.
- (20) "LPG" means liquefied petroleum gas.
- (21) "MDV" means medium-duty vehicles.
- (22) "MT" means metric tons of carbon dioxide equivalent.
- (23) "PHEV" means plug-in hybrid vehicles.
- (24) "ULSD" means California ultra low sulfur diesel.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, 43013, and 43018, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, 43013, and 43018, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95482. Average Carbon Intensity Requirements for Gasoline and Diesel

- (a) Starting January 1, 2011 and for each year thereafter, a regulated party must meet the average carbon intensity requirements set forth in Table 1 and Table 2 of this section for its transportation gasoline and diesel fuel, respectively, in each calendar year. For 2010 only, a regulated party does not need to meet a carbon intensity requirement, but it must meet the reporting requirements set forth in section 95484(c).
- (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 ₂ E/MJ)	% Reduction
2010	Reporting Only	
2011	95.61	0.25%
2012	95.37	0.5%
2013	94.89	1.0%
2014	94.41	1.5%
2015	93.45	2.5%
2016	92.50	3.5%
2017	91.06	5.0%
2018	89.62	6.5%
2019	88.18	8.0%
2020 and subsequent years	86.27	10.0%

- (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 ₂ E/MJ)	% Reduction
2010	Reporting Only	
2011	94.47	0.25%
2012	94.24	0.5%
2013	93.76	1.0%
2014	93.29	1.5%
2015	92.34	2.5%
2016	91.40	3.5%
2017	89.97	5.0%
2018	88.55	6.5%
2019	87.13	8.0%
2020 and subsequent years	85.24	10.0%

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, 43013, and 43018, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501,

38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, 43013, and 43018, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95483. Average Carbon Intensity Requirements for Alternative Fuels

- (a) The requirements of this section apply to a regulated party that provides an alternative fuel as a transportation fuel in California.
- (b) *Carbon Intensity Requirements for an Alternative Fuel Other Than a Biomass-Based Diesel Fuel -Intended for Use in a Single Fuel Vehicle.*
 - (1) A regulated party must use the average carbon intensity value for gasoline set forth in section 95482(b) for its alternative fuel, other than biomass-based diesel fuel, if the alternative fuel is used or intended to be used in any single-fuel:
 - (A) light-duty vehicle, or
 - (B) medium-duty vehicle.
 - (2) A regulated party must use the average carbon intensity value for diesel fuel set forth in section 95482(c) for its alternative fuel, other than biomass-based diesel fuel, that is used or intended to be used in any single-fuel application not identified in section 95483(b)(1).
- (c) *Carbon Intensity Requirements for Biomass-Based Diesel Fuel Provided for Use in a Single Fuel Vehicle.* A regulated party must use the average carbon intensity value for diesel fuel set forth in section 95482(c) if its biomass-based diesel fuel is used or intended to be used in any single-fuel:
 - (1) light-duty vehicle;
 - (2) medium-duty vehicle;
 - (3) heavy-duty vehicle;
 - (4) off-road transportation application;
 - (5) off-road equipment application;
 - (6) locomotive or commercial harbor craft application; or
 - (7) non-stationary source application not otherwise specified in 1-6 above.

- (d) *Carbon Intensity Requirements for Transportation Fuels Intended for Use in Multi-Fuel Vehicles.*
- (1) For an alternative fuel provided for use in a multi-fueled vehicle, a regulated party must use:
- (A) the average carbon intensity value for gasoline set forth in section 95482(b) if one of the fuels used in the multi-fuel vehicle is gasoline; or
 - (B) the average carbon intensity value for diesel fuel set forth in section 95482(c) if one of the fuels used in the multi-fuel vehicle is diesel fuel.
- (2) For an alternative fuel provided for use in a multi-fueled vehicle (including a bi-fuel vehicle) that does not use gasoline or diesel fuel, a regulated party must use:
- (A) the average carbon intensity value for gasoline set forth in section 95482(b) if that alternative fuel is used or intended to be used in:
 - 1. light-duty vehicle, or
 - 2. medium-duty vehicle.
 - (B) the average carbon intensity value for diesel set forth in section 95482(c) if that alternative fuel is used or intended to be used in an application not identified in section 95483(d)(2)(A).

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, 43013, and 43018, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, 43013, and 43018, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95484. Requirements for Regulated Parties

(a) Identification of Regulated Parties.

The purpose of this part is to establish the criteria by which a regulated party 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.

(1) Regulated Parties for Gasoline.

(A) Designation of Producers and Importers as Regulated Parties.

1. Where Oxygenate Is Added to Downstream CARBOB.

For gasoline consisting of CARBOB and an oxygenate added downstream from the California facility at which the CARBOB was produced or imported, the regulated party is initially the following:

- a. With respect to the CARBOB, the regulated party is the producer or importer of the CARBOB; and
- b. With respect to the oxygenate, the regulated party is the producer or importer of the oxygenate.

2. Where No Separate CARBOB.

For gasoline that does not include CARBOB that had previously been supplied from the facility at which was produced or imported, the regulated party for the gasoline is the producer or importer of the gasoline.

(B) Effect of Transfer of CARBOB by Regulated Party.

1. Threshold Determination Whether Recipient of CARBOB is a Producer or Importer.

Whenever a person who is the regulated party for CARBOB transfers ownership of the CARBOB, the recipient must notify the transferor whether the recipient is a producer or importer for purposes of this section 95484(a)(1)(B).

2. Producer or Importer Acquiring CARBOB Becomes the Regulated Party Unless Specified Conditions Are Met.

Except as provided for in section 95484(a)(1)(B)3., when a person who is the regulated party transfers ownership of the CARBOB to a producer or importer, the recipient of ownership of the CARBOB (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 paragraphs a. and b. below, and the transferor and recipient must meet the requirements specified in paragraph c., as set forth below:

- a. the volume and average carbon intensity of the transferred CARBOB. For a transferor that is a regulated party subject to section 95486(b)(2)(A)2., the transferor of CARBOB may report as the “average carbon intensity” on the product transfer document the total carbon intensity value for CARBOB as shown in the Carbon Intensity Lookup Table; and
- b. the recipient is now the regulated party for the acquired CARBOB and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the CARBOB.
- c. For purposes of section 95485(a), except as provided in paragraph c.iii. of this provision:
 - i. the transferor under a. above must include the $Deficits_{Incremental}^{XD}$ as defined and set forth in section 95486(b)(2)(A)2.a., in the transferor’s annual credits and deficits balance calculation set forth in section 95485(a)(2); and
 - ii. the recipient under b. above must include $Deficits_{Base}^{XD}$ as defined and set forth in section 95486(b)(2)(A)2.a., in the recipient’s annual credits and deficits balance calculation set forth in section 95485(a)(2).
 - iii. Paragraphs c.i and c.ii. above notwithstanding, the transferor and recipient of CARBOB 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(a)(2).

3. *Transfer of CARBOB or Gasoline to a Producer or Importer and Retaining Compliance Obligation.*

Section 95484(a)(1)(B)2. notwithstanding, a regulated party transferring ownership of CARBOB to a producer or importer may elect to remain the regulated party and retain the LCFS compliance obligation for the transferred CARBOB by providing the recipient at the time of transfer with a product transfer document that prominently states that the transferor has elected to remain the regulated party with respect to the CARBOB.

4. *If Recipient Is Not a Producer or Importer, Regulated Party Transferring CARBOB Remains Regulated Party Unless Specified Conditions Are Met.*

When a person who is the regulated party for CARBOB transfers ownership of the CARBOB to a person who is not a producer or importer, the transferor remains the regulated party unless the conditions of section 95484(a)(1)(B)5. are met.

5. *Conditions Under Which a Non-Producer and Non-Importer Acquiring Ownership of CARBOB 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. 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 paragraphs a. and b. below, and the transferor and recipient must meet the requirements specified in paragraph c., as set forth below::

- a. the volume and average carbon intensity of the transferred CARBOB. For a transferor that is a regulated party subject to section 95486(b)(2)(A)2., the transferor of CARBOB may report as the "average

carbon intensity” on the product transfer document the total carbon intensity value for CARBOB as shown in the Carbon Intensity Lookup Table; and

b. the recipient is now the regulated party for the acquired CARBOB and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the CARBOB.

c. For purposes of section 95485(a), except as provided in paragraph c.iii. of this provision:

i. the transferor under a. above must include the $Deficits_{Incremental}^{XD}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the transferor’s annual credits and deficits balance calculation set forth in section 95485(a)(2); and

ii. the recipient under b. above must include $Deficits_{Base}^{XD}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the recipient’s annual credits and deficits balance calculation set forth in section 95485(a)(2).

iii. Paragraphs c.i and c.ii. above notwithstanding, the transferor and recipient of CARBOB 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(a)(2).

(C) *Effect of Transfer By Regulated Party of Oxygenate to Be Blended With CARBOB.*

1. *Person Acquiring the Oxygenate Becomes the Regulated Party Unless Specified Conditions Are Met.*

Except as provided in section 95484(a)(1)(C)2., when a person who is the regulated party for oxygenate to be blended with CARBOB transfers ownership of the oxygenate before it has been blended with CARBOB, the recipient of ownership of the oxygenate (i.e., the transferee) becomes the regulated party for it. The transferor must provide the

recipient a product transfer document that prominently states:

- a. the volume and carbon intensity of the transferred oxygenate; and
- b. the recipient is now the regulated party for the acquired oxygenate and accordingly is responsible for meeting the requirements of the LCFS with respect to the oxygenate.

2. *Transfer of Oxygenate and Retaining Compliance Obligation.*

Section 95484(a)(1)(C)1. notwithstanding, a regulated party transferring ownership of oxygenate may elect to remain the regulated party and retain the LCFS compliance obligation for the transferred oxygenate by providing the recipient at the time of transfer with a product transfer document that prominently states that the transferor has elected to remain the regulated party with respect to the oxygenate.

(D) *Effect of Transfer by a Regulated Party of Gasoline to be Blended With Additional Oxygenate.*

A person who is the sole regulated party for a batch of gasoline and is transferring ownership of the gasoline to another party that will be combining it with additional oxygenate may transfer his or her obligations as a regulated party if all of the conditions set forth below are met.

1. Blending the additional oxygenate into the gasoline is not prohibited by title 13, California Code of Regulations, section 2262.5(d).
2. By the time ownership is transferred the two parties agree by written contract that the person acquiring ownership accepts the LCFS compliance obligations as a regulated party with respect to the gasoline.
3. The transferor provides the recipient a product transfer document that prominently states the information specified in paragraphs a. and b. below, and the transferor and recipient must meet the requirements specified in paragraph c., as set forth below:

- a. the volume and average carbon intensity of the transferred gasoline. For a transferor that is a regulated party subject to section 95486(b)(2)(A)2., the transferor may use the total carbon intensity value for CARBOB along with the carbon intensity for the oxygenate, as shown in the Carbon Intensity Lookup Table, for calculating the “average carbon intensity” on the product transfer document; and
 - b. the recipient is now the regulated party for the acquired gasoline and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the gasoline.
 - c. For purposes of section 95485(a), except as provided in paragraph c.iii. of this provision:
 - i. the transferor under a. above must include the $Deficits_{Incremental}^{XD}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the transferor’s annual credits and deficits balance calculation set forth in section 95485(a)(2); and
 - ii. the recipient under b. above must include $Deficits_{Base}^{XD}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the recipient’s annual credits and deficits balance calculation set forth in section 95485(a)(2).
 - iii. Paragraphs c.i and c.ii. above notwithstanding, the transferor and recipient of CARBOB 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(a)(2).
4. The written contract between the parties includes an agreement that the recipient of the gasoline will be blending additional oxygenate into the gasoline.

(E) *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 95484(a)(1)(C).

(2) *Regulated Party for Diesel Fuel and Diesel Fuel Blends.*

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

1. *Where Biomass-Based Diesel Is Added to Downstream Diesel Fuel.*

For a diesel fuel blend consisting of diesel fuel and biomass-based diesel added downstream from the California facility at which the diesel fuel was produced or imported, the regulated party is initially the following:

- a. With respect to the diesel fuel, the regulated party is the producer or importer of the diesel fuel; and
- b. With respect to the biomass-based diesel, the regulated party is the producer or importer of the biomass-based diesel.

2. *All Other Diesel Fuels.*

For any other diesel fuel that does not fall within section 95484(a)(2)(A)1., the regulated party is the producer or importer of the diesel fuel.

(B) *Effect of Transfer of Diesel Fuel and Diesel Fuel Blends by Regulated Party.*

1. *Threshold Determination Whether Recipient of Diesel Fuel or Diesel Fuel Blend is a Producer or Importer.*

Whenever a person who is the regulated party for diesel fuel or a diesel fuel blend transfers ownership before it has been transferred from its final distribution facility, the recipient must notify the transferor whether the recipient is a producer or importer for purposes of this section 95484(a)(2)(B).

2. *Producer or Importer Acquiring Diesel Fuel or Diesel Fuel Blend Becomes the Regulated Party Unless Specified Conditions Are Met.*

Except as provided for in section 95484(a)(2)(B)3., when a person who is the regulated party for diesel fuel or a diesel fuel blend transfers ownership to a producer or importer before it has been transferred from its final distribution facility, the recipient of ownership of the diesel fuel or diesel fuel blend (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 paragraphs a. and b. below, and the transferor and recipient must meet the requirements specified in paragraph c., as set forth below:

- a. the volume and average carbon intensity of the transferred diesel fuel or diesel fuel blend. For a transferor that is a regulated party subject to section 95486(b)(2)(A)2., the transferor of diesel fuel or diesel fuel blend may report as the “average carbon intensity” on the product transfer document the total carbon intensity value for “diesel” (ULSD) as shown in the Carbon Intensity Lookup Table; and
- b. the recipient is now the regulated party for the acquired diesel fuel or diesel fuel blend and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to it.
- c. For purposes of section 95485(a), except as provided in paragraph c.iii. of this provision:
 - i. the transferor under a. above must include the $Deficits_{Incremental}^{XD}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the transferor’s annual credits and deficits balance calculation set forth in section 95485(a)(2); and
 - ii. the recipient under b. above must include $Deficits_{Base}^{XD}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the recipient’s annual credits and deficits balance calculation set forth in section 95485(a)(2).

iii. Paragraphs c.i and c.ii. above notwithstanding, the transferor and recipient of diesel fuel or diesel fuel blend 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(a)(2).

3. *Transfer of Diesel Fuel or Diesel Fuel Blend to a Producer or Importer and Retaining Compliance Obligation.*

Section 95484(a)(2)(B)2. notwithstanding, a regulated party transferring ownership of 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 diesel fuel or diesel fuel blend by providing the recipient at the time of transfer with a product transfer document that prominently states that the transferor has elected to remain the regulated party with respect to the diesel fuel or diesel fuel blend.

4. *If Recipient Is Not a Producer or Importer, Regulated Party Transferring Diesel Fuel or Diesel Fuel Blend Remains Regulated Party Unless Specified Conditions Are Met.*

When a person who is the regulated party for diesel fuel or a diesel fuel blend transfers ownership of the diesel fuel or diesel fuel blend to a person who is not a producer or importer, the transferor remains the regulated party unless the conditions of section 95484(a)(2)(B)5. are met.

5. *Conditions Under Which a Non-Producer and Non-Importer Acquiring Ownership of Diesel Fuel or Diesel Fuel Blend Becomes the Regulated Party.*

A person, who is neither a producer nor an importer and who acquires ownership of diesel fuel or a diesel fuel blend from the regulated party, becomes the regulated party for the diesel fuel or diesel fuel blend 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 paragraphs a. and b. below, and the transferor and recipient must meet the requirements specified in paragraph c., as set forth below:

- a. the volume and average carbon intensity of the transferred diesel fuel or diesel fuel blend. For a transferor that is a regulated party subject to section 95486(b)(2)(A)2., the transferor of diesel fuel or diesel fuel blend may report as the “average carbon intensity” on the product transfer document the total carbon intensity value for “diesel” (ULSD) as shown in the Carbon Intensity Lookup Table; and
- b. the recipient is now the regulated party for the acquired diesel fuel or diesel fuel blend and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the diesel fuel or diesel fuel blend.
- c. For purposes of section 95485(a), except as provided in paragraph c.iii. of this provision:
 - i. the transferor under a. above must include the $Deficits_{Incremental}^{XD}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the transferor’s annual credits and deficits balance calculation set forth in section 95485(a)(2); and
 - ii. the recipient under b. above must include $Deficits_{Base}^{XD}$, as defined and set forth in section 95486(b)(2)(A)2.a., in the recipient’s annual credits and deficits balance calculation set forth in section 95485(a)(2).
 - iii. Paragraphs c.i and c.ii. above notwithstanding, the transferor and recipient of diesel fuel or diesel fuel blend 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(a)(2).

(C) *Effect of Transfer By Regulated Party of Biomass-Based Diesel to Be Blended With Diesel Fuel.*

1. *Person Acquiring the Biomass-Based Diesel Becomes the Regulated Party Unless Specified Conditions Are Met.*

Except as provided in section 95484(a)(2)(C)2., when a person who is the regulated party for biomass-based diesel to be blended with diesel fuel transfers ownership of the biomass-based diesel before it has been blended with diesel fuel, the recipient of ownership of the 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:

- a. the volume and carbon intensity of the transferred biomass-based diesel; and
- b. the recipient is now the regulated party for the acquired biomass-based diesel and accordingly is responsible for meeting the requirements of the LCFS with respect to the biomass-based diesel.

2. *Transfer of Biomass-Based Diesel and Retaining Compliance Obligation.*

Section 95484(a)(2)(C)1. notwithstanding, the transferor may elect to remain the regulated party and retain the LCFS compliance obligation for the transferred biomass-based diesel by providing the recipient at the time of transfer with a product transfer document that prominently states that the transferor has elected to remain the regulated party with respect to the biomass-based diesel.

(3) *Regulated Party For Liquid Alternative Fuels Not Blended With Gasoline Or Diesel Fuel.*

For a liquid alternative fuel, including but not limited to neat denatured ethanol and neat biomass-based diesel, that is not blended with gasoline or diesel fuel, or with any other petroleum-derived fuel, the regulated party is the producer or importer of the liquid alternative fuel.

(4) *Regulated Party For Blends Of Liquid Alternative Fuels And Gasoline Or Diesel Fuel.*

(A) *Designation of producers and Importers as regulated parties.*

For a transportation fuel that is a blend of liquid alternative fuel and gasoline or diesel fuel – but that does not itself constitute gasoline or diesel fuel – the regulated party is the following:

- (1) With respect to the alternative fuel component, the regulated party is the person who produced the liquid alternative fuel in California or imported it into California; and
- (2) With respect to the gasoline or diesel fuel component, the regulated party is the person who produced the gasoline or diesel fuel in California or imported it into California.

(B) *Transfer Of A Blend Of Liquid Alternative Fuel And Gasoline Or Diesel Fuel And Compliance Obligation.*

Except as provided for in section 95484(a)(4)(C), on each occasion that a person transfers ownership of fuel that falls within section 95484(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:

1. the volume and average carbon intensity of the transferred alternative liquid fuel blend; and
2. the recipient is now the regulated party for the acquired alternative liquid fuel blend and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the alternative liquid fuel blend.

(C) *Transfer Of A Blend Of Liquid Alternative Fuel And Gasoline Or Diesel Fuel And Retaining Compliance Obligation.*

Section 95484(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 identifies the volume and average carbon intensity of the transferred alternative liquid fuel blend.

(5) *Regulated Parties for Natural Gas (Including CNG, LNG, and Biogas).*

(A) *Designation of Regulated Parties for Fossil CNG and Biogas CNG.*

1. *Where Biogas CNG is Added to Fossil CNG.*

For fuel consisting of a fossil CNG and biogas CNG blend, the regulated party is initially the following:

- a. With respect to the fossil CNG, the regulated party is the person that owns the natural gas fueling equipment at the facility at which the fossil CNG and biogas CNG blend is dispensed to motor vehicles for their transportation use; and
- b. With respect to the biogas CNG, the regulated party is the producer or importer of the biogas CNG.

2. *Where No Biogas CNG is Added to Fossil CNG.*

For fuel consisting solely of fossil CNG, the regulated party is the person that owns the natural gas fueling equipment at the facility at which the fossil CNG is dispensed to motor vehicles for their transportation use.

(B) *Designation of Regulated Parties for Fossil LNG and Biogas LNG.*

1. *Where Biogas LNG is Added to Fossil LNG.*

For a fuel consisting of a fossil LNG and biogas LNG blend, the regulated party is initially the following:

- a. With respect to the fossil LNG, the regulated party is the person that owns the fossil LNG when it is transferred to the facility at which the liquefied blend is dispensed to motor vehicles for their transportation use; and
- b. With respect to the biogas, the regulated party is the producer or importer of the biogas LNG.

2. *Where No Biogas LNG is Added to Fossil LNG.*

For fuel consisting solely of fossil LNG, the regulated party is initially the person that owns the fossil LNG when it is

transferred to the facility at which the fossil LNG is dispensed to motor vehicles for their transportation use.

(C) *Designation of Regulated Party for Biogas CNG or Biogas LNG Supplied Directly to Vehicles for Transportation Use.*

For fuel consisting solely of biogas CNG or biogas LNG that is produced in California and supplied directly to vehicles in California for their transportation use without first being blended into fossil CNG or fossil LNG, the regulated party is initially the producer of the biogas CNG or biogas LNG.

(D) *Effect of Transfer of Fuel by Regulated Party.*

1. *Transferor Remains Regulated Party Unless Conditions Are Met.*

When a person who is the regulated party for a fuel specified in section 95484(a)(5)(A), (B), or (C) transfers ownership of the fuel, the transferor remains the regulated party unless the conditions of section 95484(a)(5)(D)2. are met.

2. *Conditions Under Which a Person Acquiring Ownership of a Fuel Becomes the Regulated Party.*

Section 95484(a)(5)(D)1. notwithstanding, a person acquiring ownership of a fuel specified in section 95484(a)(5)(A), (B), or (C) from the regulated party becomes the regulated party for that fuel 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:

- a. the volume and average carbon intensity of the transferred fuel; and
- b. the recipient is now the regulated party for the acquired fuel and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the acquired fuel.

(6) *Regulated Parties for Electricity.*

For electricity used as a transportation fuel, the regulated party is determined in the order specified below:

- (A) The load-serving entity or other provider of electricity services, unless section 95484(a)(6)(B), (C), or (D) below applies. “Load-serving entity” has the same meaning specified in Public Utilities Code (PUC) section 380. “Provider of electricity services” means a local publicly-owned utility, retail seller (as defined in PUC section 399.12(g)), or any other person that supplies electricity to the vehicle charging equipment;
- (B) The electricity services supplier, where “electricity services supplier” means any person or entity that provides bundled charging infrastructure and other electric transportation services and provides access to vehicle charging under contract with the vehicle owner or operator;
- (C) The owner and operator of the electric-charging equipment, provided there is a contract between the charging equipment owner-operator and the provider of electricity services specifying that the charging equipment owner-operator is the regulated party;
- (D) The owner of a home with electric vehicle-charging equipment, provided there is a contract between the homeowner and provider of electricity services specifying that the homeowner may acquire credits.

(7) *Regulated Parties for Hydrogen Or A Hydrogen Blend.*

(A) *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 regulated party is initially the person who owns the finished hydrogen fuel at the time the blendstocks are blended to make the finished hydrogen fuel.

(B) *Transfer of Ownership and Retaining Compliance Obligation.*

Except as provided for in section 95484(a)(7)(C), when a person who is the regulated party transfers ownership of a finished hydrogen fuel to another person, the transferor remains the regulated party.

(C) *Conditions Under Which a Person Acquiring Ownership of Finished Hydrogen Fuel Becomes the Regulated Party.*

Section 95484(a)(7)(B) notwithstanding, a person who acquires ownership of finished hydrogen fuel becomes the regulated party for the fuel if, by the time ownership is transferred, the two parties (transferor and recipient) 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:

1. the volume and average carbon intensity of the transferred finished hydrogen fuel; and
2. the recipient is now the regulated party for the acquired finished hydrogen fuel and accordingly is responsible for meeting the requirements of the LCFS regulation with respect to the acquired finished hydrogen fuel.

(b) *Calculation of Credit Balance*

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

$$\begin{aligned} \text{CreditBalance} = & \text{Credits}^{\text{Gen}} + \text{Credits}^{\text{CarriedOver}} + \text{Credits}^{\text{Acquired}} \\ & + \text{Deficits}^{\text{Gen}} - \text{Credits}^{\text{Sold}} - \text{Credits}^{\text{Exported}} - \text{Credits}^{\text{Retired}} \end{aligned}$$

where:

$\text{Credits}^{\text{Gen}}$ is the total credits generated pursuant to section 95485(a) for the current compliance period;

$\text{Credits}^{\text{CarriedOver}}$ is the credits or deficits carried over from the previous compliance period;

$\text{Credits}^{\text{Acquired}}$ is the credits purchased or otherwise acquired in the current compliance period;

$Deficits^{Gen}$ is the total deficits generated pursuant to section 95485(a) for the current compliance period;

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

$Credits^{Exported}$ is the credits exported to programs outside the LCFS for the current compliance period; and

$Credits^{Retired}$ is the credits retired within the LCFS for the current compliance period.

- (3) *Deficit Carryover.* A regulated party with a negative credit balance in a compliance period may carry over the deficit to the next compliance period, without penalty, if both the following conditions are met:
- (A) the regulated party has a credit balance greater than or equal to zero in the previous compliance period; and
 - (B) the sum of the magnitude of $Credits^{Gen}$, $Credits^{CarriedOver}$, and $Credits^{Acquired}$ is greater than or equal to 90 percent of the sum of the magnitude of $Deficits^{Gen}$, $Credits^{Sold}$, $Credits^{Exported}$, $Credits^{Retired}$ and for the current compliance period.
- (4) *Deficit Reconciliation.*
- (A) A regulated party that meets the conditions of deficit carryover, as specified in section 95481(b)(3), must eliminate any deficit generated in a given compliance period by the end of the next compliance period. A deficit may be eliminated only by retirement of an equal amount of retained credits ($Credits^{CarriedOver}$), by purchase of an equal amount of credits from another regulated party, or by any combination of these two methods.
 - (B) If the conditions of deficit carryover as specified in section 95481(b)(3) are not met, a regulated party must eliminate any deficit generated in a given compliance period by the end of the next compliance period. A deficit may be eliminated only by retirement of an equal amount of retained credits ($Credits^{CarriedOver}$), by purchase of an equal amount of credits from another regulated party, or by any combination of these two methods. In addition, the regulated party is subject to penalties to the extent permitted under State law.

- (C) A regulated party that is reconciling in the current compliance period a deficit from the previous compliance period under (A) or (B) above remains responsible for meeting the LCFS regulation requirements during the current compliance period.

(c) *Reporting Requirements.*

- (1) *Reporting Frequency.* A regulated party must submit to the Executive Officer quarterly progress reports and annual compliance reports, as specified in sections 95484(c)(3) and 95484(c)(4). The reporting frequencies for these reports are set forth below:
 - (A) *Quarterly Progress Reports For All Regulated Parties.* Beginning 2010 and each year thereafter, a regulated party must submit quarterly progress reports to the Executive Officer by:
 1. May 31st – for the first calendar quarter covering January through March;
 2. August 31st – for the second calendar quarter covering April through June;
 3. November 30th – for the third calendar quarter covering July through September; and
 4. February 28th (29th in a leap year) – for the fourth calendar quarter covering October through December.
 - (B) *Annual Compliance Reports.* By April 30th of 2011, a regulated party must submit an annual report for calendar year 2010. By April 30th of 2012 and each year thereafter, a regulated party must provide an annual compliance report for the prior calendar year.
- (2) *How To Report.* A regulated party must submit an annual compliance and quarterly progress report by using an interactive, secured internet web-based form.

The regulated party is solely responsible for ensuring that the Executive Officer receives its progress and compliance reports by the dates specified in section 95484(c)(1). The Executive Officer shall not be responsible for failure of electronically submitted reports to be transmitted to the Executive Officer. The report must contain a statement attesting to the report's accuracy and validity. The Executive Officer shall not deem an electronically submitted report to be valid unless the report is accompanied by a digital signature that meets the requirements of Title 2, California Code of Regulations, section 22000 et seq.

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

(A) *Specific Quarterly Reporting Requirements (Except As Otherwise Noted) for Gasoline and Diesel Fuel.*

1. For each transfer of gasoline or diesel fuel that results in a transfer of the compliance obligation or retention of the compliance obligation by written contract, the regulated party must provide to the Executive Officer, within 10 business days of a request, the product transfer document ~~and report~~ containing the applicable information identified in section 95484(a)(1)(B), (a)(1)(C), (a)(1)(D), (a)(2)(B), (a)(2)(C), (a)(4)(B), (a)(4)(C), (a)(5)(D), or (a)(7)(C), whichever applies.
2. The carbon intensity value of each blendstock determined pursuant to section 95486.
3. The volume of each blendstock (in gal) per compliance period. For purposes of this provision only, the regulated party may report the total volume of each blendstock aggregated for each distinct carbon intensity value (e.g., X gallons of blendstock with A gCO₂e/MJ, Y gallons of blendstock with B gCO₂e/MJ, etc.). Further, if the regulated party is subject to section 95486(b)(2)(A)2. for fuel or blendstock derived from high carbon-intensity crude oil (HCICO), regulated party must report the E_{HCICO}^{XD} per compliance period, where E_{HCICO}^{XD} is defined in section 95486(b)(2)(A)2.a.
4. All Renewable Identification Numbers (RINs) that are retired for facilities in California.

(B) *Specific Quarterly Reporting Requirements for Natural Gas (including CNG, LNG, and Biogas).*

For each private access, public access, or home fueling facility to which the regulated party supplies CNG, LNG or biogas as a transportation fuel:

1. For CNG, the regulated party must report the amount of fuel dispensed (in scf) per compliance period for all light/medium-duty vehicles (“LDV & MDV”) and heavy-duty vehicles (“HDV”). For LNG, the regulated party must report the amount of fuel dispensed (in gal) per compliance period for all LDV & MDV and HDV;
2. Except as provided for in section 95484(c)(3)(B)3., the regulated party must report the amount of fuel dispensed based on the use of separate fuel dispenser meters at each fuel dispenser;
3. In lieu of using separate meters at each fuel dispenser, the regulated party may report the amount of fuel dispensed at each facility using any other method that the regulated party demonstrates to the Executive Officer’s satisfaction as being equivalent to or better than the use of separate fuel meters at each fuel dispenser in each fueling facility;
4. The carbon intensity value of the CNG, LNG, or biogas determined pursuant to section 95486.

(C) *Specific Quarterly Reporting Requirements for Electricity.*

For electricity used as a transportation fuel, a regulated party must also submit the following:

1. For residential charging stations, the total electricity dispensed (in kWh) to all vehicles at each residence based on direct metering, which distinguishes electricity delivered for transportation use. Before January 1, 2015, “based on direct metering” means either:
 - a. the use of direct metering (also called submetering) to measure the electricity directly dispensed to all vehicles at each residential charging station; or
 - b. for households and residences only where direct metering has not been installed, the regulated party may report the total electricity dispensed at each residential charging station using another method that the regulated party demonstrates to the Executive Officer’s satisfaction is substantially similar to the use of direct metering under section (c)(3)(C)1.a..

Effective January 1, 2015, “based on direct metering” means only the use of direct metering as specified in section (c)(3)(C)1.a. above;

2. For each public access charging facility, the amount of electricity dispensed (in kW-hr);
3. For each fleet charging facility, the amount of fuel dispensed (in kW-hr).
4. The carbon intensity value of the electricity determined pursuant to section 95486.

(D) *Specific Quarterly Reporting Requirements for Hydrogen or a Hydrogen Blend.* For hydrogen or a hydrogen blend used as a transportation fuel, a regulated party must also submit the following:

1. For each private access fueling facility, the amount of fuel dispensed (in kg) by vehicle weight category: LDV & MDV and HDV.
2. For each public access filling station, the amount of fuel dispensed (in kg) by vehicle weight category: LDV & MDV and HDV.
3. The carbon intensity value of the hydrogen or the blendstocks used to produce the hydrogen blend determined pursuant to section 95486.

(4) *General and Specific Reporting Requirements for Annual Compliance Reports.*

A regulated party must submit an annual compliance report that meets, at minimum, the general and specific requirements specified in section 95484(c)(3) above and the additional requirements set forth below:

(A) A regulated party must report the following:

1. The total credits and deficits generated by the regulated party in the current compliance period, calculated as per equations in section 95485(a);
2. Any credits carried over from the previous compliance period;

3. Any deficits carried over from the previous compliance period;
4. The total credits acquired from another party and identify the party from whom the credits were acquired;
5. The total credits sold or otherwise transferred and identify each party to whom those credits were transferred;
6. The total credits retired within the LCFS; and
7. The total credits exported to programs outside the LCFS.

(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 the carbon intensity lookup table (Method 1);
- (B) credits, expressed to the nearest whole metric ton CO₂ equivalent;
- (C) fuel volume, expressed as follows:
 1. a fuel volume greater than 1 million gasoline gallon equivalent (gge) must be expressed to the nearest 10,000 gge;
 2. a fuel volume between 100,000 gge and 1 million gge, inclusive, must be expressed to the nearest 1,000 gge;
 3. a fuel volume between 10,000 gge and 99,999 gge, inclusive, must be expressed to the nearest 100 gge; and
 4. a fuel volume less than 9,999 gge must be expressed to the nearest 10 gge.
- (D) any other quantity not specified in section 95484(c)(5)(A) to 95484(c)(5)(C) must be expressed to the nearest whole unit applicable for that quantity.
- (E) *Rounding Intermediate Calculated Values.*

A regulated party must use one of the following procedures for rounding intermediate calculated values for fuel quantity dispensed,

blended, or sold in California; calculated carbon intensity values; calculated LCFS credits and deficits; and any other calculated or measured quantity required to be used, recorded, maintained, provided, or reported for the purpose determining a reported value under the LCFS regulation (17 CCR section 95480 et seq.):

1. ASTM E 29-08 (October 1, 2008), (*Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications*), which is incorporated herein by reference; or
2. Any other practice that the regulated party has demonstrated to the Executive Officer's written satisfaction provides equivalent or better results as compared with the method specified in subsection 95484(c)(5)(E)1. above.

Table 3. Summary Checklist of Quarterly and Annual Reporting Requirements for LCFS Transportation Fuels.

Parameters to Report	Gasoline & Diesel fuel	CNG & LNG	Electricity	Hydrogen Or Hydrogen Blends	Neat Ethanol or Biomass-Based Diesel Fuels
Company or organization name	x	x	x	x	x
Reporting period	x	x	x	x	x
Type of fuel	x	x	x	x	x
Blended fuel (yes/no)	x	x	x	x	x
If yes, number of blendstocks	x	x	n/a	x	x
Type(s) of blendstock	x	x	n/a	x	x
RIN numbers	x	n/a	n/a	n/a	x
Blendstock feedstock	x	x	n/a	x	x
Feedstock origin	x	x	n/a	x	x
Production process	x	x	x*	x	x
Amount of each blendstock (MJ)	x	x	n/a	x	x
**The CI of the fuel or blendstock ($CI_{reported}^{XD}$)	x	x	x	x	x
Amount of each fuel used as gasoline replacement (MJ)	x	x	x	x	x
Amount of each fuel used as diesel fuel replacement (MJ)	x	x	x	x	x
**Credits/deficits generated per quarter (MT)	x	x	x	x	x
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
**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) , if any	x	x	x	x	x

* Optional. However if qualifying the CI value of electricity, under method 2A, that is different from CA Marginal electricity value, production process must be reported. **Value will be calculated or stored in the compliance tool.

(d) *Recordkeeping and Auditing.*

- (1) A regulated party must retain all of the following records for at least 3 years and must provide such records within 20 days of a written request received from the Executive Officer or his/her designee before expiration of the period during which the records are required to be retained:
- (A) product transfer documents;
 - (B) copies of all data and reports submitted to the Executive Officer;
 - (C) records related to each fuel transaction; and
 - (D) records used for compliance or credit calculations.
- (2) *Evidence of Physical Pathway.*

A regulated party may not generate credits pursuant to section 95485 unless it has demonstrated or provided a demonstration to the Executive Officer that a physical pathway exists, for each of the transportation fuels and blendstocks for which it is responsible under the LCFS regulation, and that each physical pathway has been approved by the Executive Officer pursuant to this section 95484(d)(2). For purposes of this provision, “demonstrated” and “demonstration” includes any combination of the following:

- (A) a showing by the regulated party using its own documentation; or
- (B) a showing by the regulated party that incorporates by reference documentation voluntarily submitted by another regulated party or a non-regulated party fuel producer, provided the documentation applies to and accurately represents the regulated party’s transportation fuel or blendstock;

“Physical pathway” means the applicable combination of actual fuel delivery methods, such as truck routes, rail lines, gas/liquid pipelines, electricity transmission lines, 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.

The Executive Officer shall not approve a physical pathway demonstration unless the demonstration meets the following requirements:

- (AC) *Initial Demonstration of Delivery Methods.*

The regulated party must provide an initial demonstration of the delivery methods comprising the physical pathway for each of the regulated party's fuels. The initial demonstration must include documentation in sufficient detail for the Executive Officer to verify the existence of the physical pathway's delivery methods.

The documentation must include a map(s) that shows the truck/rail lines or routes, pipelines, transmission lines, and other delivery methods (segments) that, together, comprise the physical pathway. If more than one company is involved in the delivery, each segment on the map must be linked to a specific company ~~who~~ that is expected to transport the fuel through each segment of the physical pathway. The regulated party must provide the contact information for each such company, including the contact name, mailing address, phone number, and company name ~~for each such person~~.

(BD) *Initial Demonstration of Fuel Introduced Into the Physical Pathway.*

For each blendstock or alternative fuel for which LCFS credit is being claimed, the regulated party must provide evidence showing that a specific volume of that blendstock or fuel was introduced by its provider into the physical pathway identified in section 95484(d)(2)(AC). The evidence may include, but is not limited to, a written purchase contract or transfer document for the volume of blendstock or alternative fuel that was introduced or otherwise delivered into the physical pathway.

(GE) *Initial Demonstration of Fuel Removed From the Physical Pathway.*

For each specific volume of blendstock or alternative fuel identified in section 95484(d)(2)(BD), the regulated party must provide evidence showing that the same volume of blendstock or fuel was removed from the physical pathway in California by the regulated party and provided for transportation use in California. The evidence may include, but is not limited to, a written sales contract or transfer document for the volume of blendstock or alternative fuel that was removed from or otherwise extracted out of the physical pathway in California.

(DE) *Subsequent Demonstration of Physical Pathway.*

Once the Executive Officer has approved the initial demonstrations specified in section 95484(d)(2)(AC) through (GE), the regulated party does not need to resubmit the demonstrations for Executive Officer approval in any subsequent year, unless there is a material

change to any of the information submitted under section 95484(d)(2)(~~AC~~) through (~~CE~~).

“Material change” means any change to the initially submitted information ~~other than a change in the name, phone number, mailing address, or company name for a person identified in section 95484(d)(2)(A)~~ involving a change in the basic mode of transport for the fuel. For example, if an approved pathway using rail transport is changed to add to or replace the rail with truck or ship transport, that change would be deemed a material change.

If there is a material change to an approved physical pathway demonstration, the regulated party must notify the Executive Officer in writing within ~~5~~ 30 business days after the material change has occurred, and the approved physical pathway shall become invalid 30 business days after the material change has occurred. ~~The A regulated party that wishes to generate credits after an approved physical pathway has become invalid must submit for Executive Officer approval a new initial demonstrations, pursuant to section 95484(d)(2)(~~AC~~) through (~~CE~~), which includes the material change(s) to the physical pathway. For a changes to an approved physical pathway that are is not a material changes, the regulated party must notify the Executive Officer of the applicable change in the person’s name, phone number, mailing address, or company name within 10 business days after the non-material change has occurred.~~

(~~EG~~) *Submittal and Review of and Final Action on Submitted Demonstrations*

1. The regulated party may not receive credit for any fuel or blendstock until the Executive Officer has approved the regulated party’s submitted physical-pathway demonstration pursuant to section 95484(d)(2)(~~C~~) through (~~E~~). Upon receiving Executive Officer approval of a physical pathway, the regulated party may claim LCFS credits based on that pathway that are calculated retroactive to the date ~~after~~ January 1, 2011 when the regulated party’s use of the pathway began but no earlier than January 1, 2011.
2. Within 15 business days of receipt of a physical pathway demonstration, the Executive Officer shall determine if the physical pathway 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 section 95484(d)(2)(~~AC~~) through (~~CE~~). 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 physical pathway demonstration and notify the regulated party of the final action.

- (3) *Data Verification.* All data and calculations submitted by a regulated party for demonstrating compliance or claiming credit are subject to verification by the Executive Officer or a third party approved by the Executive Officer.
- (4) *Access To Facility And Data.* Pursuant to H&S section 41510, if necessary under the circumstances, after obtaining a warrant, the Executive Officer has the right of entry to any premises owned, operated, used, leased, or rented by an owner or operator of a facility in order to inspect and copy records relevant to the determination of compliance.
- (5) The Executive Officer shall post on the ARB's website at <http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>, the names and contact information for each regulated party and non-regulated party fuel producer, which that has obtained Executive Officer approval of its physical pathway demonstration; and the transportation fuels and blendstocks covered by such Executive Officer approval; and details of the approved physical pathways disclosed in accordance with 17 CCR §§ 91000 – 91022 and the California Public Records Act (Government Code section 6250 et seq.).

(e) *Violations and Penalties.*

- (1) Pursuant to H&S section 38580 (part of the California Global Warming Solutions Act of 2006), any violation of the provisions of the LCFS regulation (17 CCR §95480 et seq.) may be enjoined pursuant to H&S section 41513, and the violation is subject to those penalties set forth in Article 3 (commencing with Section 42400) of Chapter 4 of Part 4 of, and Chapter 1.5 (commencing with Section 43025) of Part 5 of, Division 26.
- (2) Pursuant to H&S section 38580, any violation of the provisions of the LCFS regulation shall be deemed to result in an emission of an air contaminant for the purposes of the penalty provisions of Article 3 (commencing with Section 42400) of Chapter 4 of Part 4 of, and Chapter 1.5 (commencing with Section 43025) of Part 5 of, Division 26.
- (3) Any violation of the provisions of the LCFS regulation shall be subject to all other penalties and remedies permitted under State law.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, 43013, and 43018, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air*

Pollution Control District, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, 43013, and 43018, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95485. LCFS Credits and Deficits

(a) Calculation of Credits and Deficits Generated.

A regulated party must calculate the amount of credits and deficits generated in a compliance period for an LCFS fuel using the methods specified below in section 95485(a)(1) through (3). The total credits and deficits generated are used in determining the overall credit balance for a compliance period, pursuant to section 95484(b). 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 4, must be converted to MJ by multiplying by the corresponding energy density¹:

Table 4. Energy Densities of LCFS Fuels and Blendstocks.

Fuel (units)	Energy Density
CARBOB (gal)	119.53 (MJ/gal)
CaRFG (gal)	115.63 (MJ/gal)
Diesel fuel (gal)	134.47 (MJ/gal)
CNG (scf)	0.98 (MJ/scf)
LNG (gal)	78.83 (MJ/gal)
Electricity (KWh)	3.60 (MJ/KWh)
Hydrogen (kg)	120.00 (MJ/kg)
Neat denatured Ethanol (gal)	80.53 (MJ/gal)
Neat Biomass-based diesel (gal)	126.13 (MJ/gal)

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

- (2) The total credits and deficits generated by a regulated party in a compliance period must be calculated as follows:

$$Credits^{Gen}(MT) = \sum_i^n Credits_i^{gasoline} + \sum_i^n Credits_i^{diesel}$$

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

where:

$Credits^{Gen}$ represents the total credits (a zero or positive value), in units of metric tons (“MT”), for all fuels and blendstocks determined from the credits generated under either or both of the gasoline and diesel fuel average carbon intensity requirements;

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

i is the finished fuel or blendstock index; and

n is the total number of finished fuels and blendstocks provided by a regulated party in a compliance period.

- (3) LCFS credits or deficits for each fuel or blendstock supplied by a regulated party must be calculated according to the following equations:

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

where:

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

$CI_{standard}^{XD}$ is the average carbon intensity requirement of either gasoline (XD = "gasoline") or diesel fuel (XD = "diesel") for a given year as provided in section 95482 (b) and (c), respectively;

$CI_{reported}^{XD}$ is the adjusted carbon intensity value of a fuel or blendstock, in gCO₂E/MJ, calculated as per pursuant to section 95485(a)(3)(B);

$E_{displaced}^{XD}$ is the total amount of gasoline (XD ="gasoline") or diesel (XD ="diesel") fuel energy displaced, in MJ, by the use of an alternative fuel, calculated as per pursuant to section 95485(a)(3)(C); and

C is a factor used to convert credits to units of metric tons from gCO₂E and has the value of:

$$C = 1.0 \times 10^{-6} \frac{(MT)}{(gCO_2E)}$$

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

where:

CI_i is the carbon intensity of the fuel or blendstock, measured in gCO₂E/MJ, determined by a California-modified GREET pathway or a custom pathway and incorporates a land use modifier (if applicable); and

EER^{XD} is the dimensionless Energy Economy Ratio (EER) relative to gasoline (XD ="gasoline") or diesel fuel (XD ="diesel") as listed in Table 5. For a vehicle-fuel combination not listed in Table 5, $EER^{XD}=1$ must be used.

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

where:

E_i is the energy of the fuel or blendstock, in MJ, determined from the energy density conversion factors in Table 4.

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

Light/Medium-Duty Applications (Fuels used as gasoline replacement)		Heavy-Duty/Off-Road Applications (Fuels used as diesel replacement)	
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	0.9
Electricity / BEV, or PHEV	3.0	Electricity / BEV, or PHEV	2.7
H2 / FCV	2.3	H2 / FCV	1.9

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

- (b) *Credit Generation Frequency.* Beginning 2011 and every year afterwards, a regulated party may generate credits quarterly.
- (c) *Credit Acquisition, Banking, Borrowing, and Trading.*
- (1) A regulated party may:
- (A) retain LCFS credits without expiration for use within the LCFS market;
 - (B) acquire or transfer LCFS credits. A third-party entity, which that is not a regulated party or acting on behalf of a regulated party, may not purchase, sell, or trade LCFS credits, except as otherwise specified in (C) below; and-
 - (C) export credits for compliance with other greenhouse gas reduction initiatives including, but not limited to, programs established pursuant to AB 32 (Nunez, Stats. 2006, ch. 488), subject to the authorities and requirements of those programs.
- (2) A regulated party may not:
- (A) use credits in the LCFS program that are generated outside the LCFS program in the LCFS, including, but not limited to, credits generated in other AB 32 programs.

- (B) borrow or use credits from anticipated future carbon intensity reductions.
- (C) generate LCFS credits from fuels exempted from the LCFS under section 95480.1(d) or are otherwise not one of the transportation fuels specified in section 95480.1(a).

(d) *Nature of Credits.*

LCFS credits shall not constitute instruments, securities, or any other form of property.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43013, and 43018~~, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, ~~43013, and 43018~~, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95486. Determination of Carbon Intensity Values

(a) *Selection of Method.*

- (1) A regulated party for CARBOB, gasoline, or diesel fuel must use Method 1, as set forth in section 95486(b)(2)(A), to determine the carbon intensity of each fuel or blendstock for which it is responsible ("regulated party's fuel").
- (2) A regulated party for any other fuel or blendstock must use Method 1, as set forth in section 95486(b)(2)(B), to determine the carbon intensity of each fuel for the regulated party's fuels, unless the regulated party is approved for using either Method 2A or Method 2B, as provided in section 95486(c) or (d).
- (3) A regulated party's choice of carbon intensity value under Method 1 in either (a)(1) or (a)(2) above is subject in all cases to Executive Officer approval, as specified in this provision. If the Executive Officer has reason to believe that the regulated party's choice is not the value that most closely corresponds to its fuel or blendstock, the Executive Officer shall choose a carbon intensity value, in the Carbon Intensity Lookup Tables for the fuel or blendstock, which the Executive Officer determines is the one that most closely corresponds to the pathway for that fuel or blendstock. The Executive Officer shall provide the rationale for his/her determination to the regulated party in writing within 10 business days of the determination. The regulated party shall be responsible for reconciling any deficits, in accordance with section 95485, that were incurred as a result of its initial choice of carbon intensity values. In determining

whether a carbon intensity value that is different than the one chosen by the regulated party is more appropriate, the Executive Officer may consider any information submitted by the regulated party in support of its choice of carbon intensity value.

(b) *Method 1 – ARB Lookup Table.*

- (1) To generate carbon intensity values, ARB uses the California-modified GREET (CA-GREET) model (version 1.8b, February 2009), which is incorporated herein by reference, and a land-use change (LUC) modifier (when applicable). The CA-GREET model is available for downloading on ARB's Internet website at <http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>.

~~Upon adoption of the LCFS, ARB will certify for use in meeting the requirements of this section an initial set of carbon intensity values for various fuel pathways. This initial set of carbon intensity values will be published in a Carbon Intensity Lookup Table (hereinafter called "Lookup Table"), which will be available on ARB's internet site. Thereafter, ARB will add to the Lookup Table any new carbon intensity values and their associated pathways upon Executive Officer approval pursuant to Method 2A or 2B. Both the initial set of carbon intensity values and subsequently approved new carbon intensity values will be published in the Lookup Table and made available on ARB's internet site for use as specified in this section.~~

The Carbon-Intensity Lookup Tables, 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:

- (A) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for California Reformulated Gasoline Blendstock for Oxygenate Blending (CARBOB) from Average Crude Refined in California;"
- (B) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for California Reformulated Gasoline (CaRFG);"
- (C) Stationary Source Division, Air Resources Board (February 28, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Ultra Low Sulfur Diesel (ULSD) from Average Crude Refined in California;"
- (D) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Corn Ethanol;"

- (E) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Brazilian Sugarcane Ethanol;"
- (F) Stationary Source Division, Air Resources Board (February 28, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Compressed Natural Gas (CNG) from North American Natural Gas;"
- (G) Stationary Source Division, Air Resources Board (February 28, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Compressed Natural Gas (CNG) from Landfill Gas;"
- (H) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for California Average and Marginal Electricity;"
- (I) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Compressed Gaseous Hydrogen from North American Natural Gas;"
- (J) Stationary Source Division, Air Resources Board (~~July 20~~ September 23, 2009, v.42), "Detailed California-Modified GREET Pathways for Liquefied Natural Gas (LNG) from North American and Remote Natural Gas Sources;"
- (K) Stationary Source Division, Air Resources Board (~~July 20~~ September 23, 2009, v.42), "Detailed California-Modified GREET Pathway for Liquefied Natural Gas (LNG) from Landfill Gas (LFG);"
- (L) Stationary Source Division, Air Resources Board (July 20, 2009, v.1), "Detailed California-Modified GREET Pathway for Compressed Natural Gas (CNG) from Dairy Digester Biogas;"
- (M) Stationary Source Division, Air Resources Board (~~July 20~~ September 23, 2009, v.42), "Detailed California-Modified GREET Pathway for Liquefied Natural Gas (LNG) from Dairy Digester Biogas;"
- (N) Stationary Source Division, Air Resources Board (~~July 20~~ September 23, 2009, v.42), "Detailed California-Modified GREET Pathway for Biodiesel ~~Produced in California~~ from Used Cooking Oil;"
- (O) Stationary Source Division, Air Resources Board (~~July 20~~ September 23, 2009, v.42), "Detailed California-Modified GREET Pathway for ~~Co-Processed Renewable Diesel Produced in California~~ from Tallow (U.S. Sourced);" and
- (P) Stationary Source Division, Air Resources Board (~~July 20~~ September 23, 2009, v.2.23), "Detailed California-Modified GREET Pathways for Brazilian Sugarcane Ethanol: Average Brazilian Ethanol, With Mechanized Harvesting and Electricity Co-product Credit, With Electricity Co-product Credit."

Table 6. Carbon Intensity Lookup Table for Gasoline and Fuels that Substitute for Gasoline

<u>Fuel</u>	<u>Pathway Description</u>	<u>Carbon Intensity Values (gCO₂e/MJ)</u>		
		<u>Direct Emissions</u>	<u>Land Use or Other Indirect Effect</u>	<u>Total</u>
<u>Gasoline</u>	<u>CARBOB – based on the average crude oil delivered to California refineries and average California refinery efficiencies</u>	<u>95.86</u>	<u>0</u>	<u>95.86</u>
<u>Ethanol from Corn</u>	<u>Midwest average; 80% Dry Mill; 20% Wet Mill; Dry DGS</u>	<u>69.40</u>	<u>30</u>	<u>99.40</u>
	<u>California average; 80% Midwest Average; 20% California; Dry Mill; Wet DGS; NG</u>	<u>65.66</u>	<u>30</u>	<u>95.66</u>
	<u>California; Dry Mill; Wet DGS; NG</u>	<u>50.70</u>	<u>30</u>	<u>80.70</u>
	<u>Midwest; Dry Mill; Dry DGS, NG</u>	<u>68.40</u>	<u>30</u>	<u>98.40</u>
	<u>Midwest; Wet Mill, 60% NG, 40% coal</u>	<u>75.10</u>	<u>30</u>	<u>105.10</u>
	<u>Midwest; Wet Mill, 100% NG</u>	<u>64.52</u>	<u>30</u>	<u>94.52</u>
	<u>Midwest; Wet Mill, 100% coal</u>	<u>90.99</u>	<u>30</u>	<u>120.99</u>
	<u>Midwest; Dry Mill; Wet, DGS</u>	<u>60.10</u>	<u>30</u>	<u>90.10</u>
	<u>California; Dry Mill; Dry DGS, NG</u>	<u>58.90</u>	<u>30</u>	<u>88.90</u>
	<u>Midwest; Dry Mill; Dry DGS; 80% NG; 20% Biomass</u>	<u>63.60</u>	<u>30</u>	<u>93.60</u>
	<u>Midwest; Dry Mill; Wet DGS; 80% NG; 20% Biomass</u>	<u>56.80</u>	<u>30</u>	<u>86.80</u>
	<u>California; Dry Mill; Dry DGS; 80% NG; 20% Biomass</u>	<u>54.20</u>	<u>30</u>	<u>84.20</u>
	<u>California; Dry Mill; Wet DGS; 80% NG; 20% Biomass</u>	<u>47.404</u>	<u>30</u>	<u>77.404</u>
<u>Ethanol from Sugarcane</u>	<u>Brazilian sugarcane using average production processes</u>	<u>27.40</u>	<u>46</u>	<u>73.40</u>
	<u>Brazilian sugarcane with average production process, mechanized harvesting and electricity co-product credit</u>	<u>12.240</u>	<u>46</u>	<u>58.240</u>
	<u>Brazilian sugarcane with average production process and electricity co-product credit</u>	<u>20.40</u>	<u>46</u>	<u>66.40</u>
<u>Compressed Natural Gas</u>	<u>California NG via pipeline; compressed in CA</u>	<u>67.70</u>	<u>0</u>	<u>67.70</u>
	<u>North American NG delivered via pipeline; compressed in CA</u>	<u>68.00</u>	<u>0</u>	<u>68.00</u>
	<u>Landfill gas (bio-methane) cleaned up to pipeline quality NG; compressed in CA</u>	<u>11.26</u>	<u>0</u>	<u>11.26</u>
	<u>Dairy Digester Biogas to CNG</u>	<u>13.45</u>	<u>0</u>	<u>13.45</u>
<u>Liquefied Natural</u>	<u>North American NG delivered via pipeline; liquefied in CA using liquefaction with 80% efficiency</u>	<u>83.13</u>	<u>0</u>	<u>83.13</u>

<u>Gas</u>	<u>North American NG delivered via pipeline; liquefied in CA using liquefaction with 90% efficiency</u>	<u>72.38</u>	<u>0</u>	<u>72.38</u>
	<u>Overseas-sourced LNG delivered as LNG to Baja; re-gasified then re-liquefied in CA using liquefaction with 80% efficiency</u>	<u>93.37</u>	<u>0</u>	<u>93.37</u>
	<u>Overseas-sourced LNG delivered as LNG to CA; re-gasified then re-liquefied in CA using liquefaction with 90% efficiency</u>	<u>82.62</u>	<u>0</u>	<u>82.62</u>
	<u>Overseas-sourced LNG delivered as LNG to CA; no re-gasification or re-liquefaction in CA</u>	<u>77.50</u>	<u>0</u>	<u>77.50</u>
	<u>Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 80% efficiency</u>	<u>26.31</u> <u>95</u>	<u>0</u>	<u>26.31</u> <u>95</u>
	<u>Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 90% efficiency</u>	<u>15.56</u>	<u>0</u>	<u>15.56</u>
	<u>Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 80% efficiency</u>	<u>28.53</u> <u>27</u>	<u>0</u>	<u>28.53</u> <u>27</u>
	<u>Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 90% efficiency</u>	<u>17.78</u>	<u>0</u>	<u>17.78</u>
<u>Electricity</u>	<u>California average electricity mix</u>	<u>124.10</u>	<u>0</u>	<u>124.10</u>
	<u>California marginal electricity mix of natural gas and renewable energy sources</u>	<u>104.7</u> <u>01</u>	<u>0</u>	<u>104.7</u> <u>01</u>
<u>Hydrogen</u>	<u>Compressed H₂ from central reforming of NG (includes liquefaction and re-gasification steps)</u>	<u>142.0</u> <u>20</u>	<u>0</u>	<u>142.0</u> <u>20</u>
	<u>Liquid H₂ from central reforming of NG</u>	<u>133.00</u>	<u>0</u>	<u>133.00</u>
	<u>Compressed H₂ from central reforming of NG (no liquefaction and re-gasification steps)</u>	<u>98.80</u>	<u>0</u>	<u>98.80</u>
	<u>Compressed H₂ from on-site reforming of NG</u>	<u>98.30</u>	<u>0</u>	<u>98.30</u>
	<u>Compressed H₂ from on-site reforming with renewable feedstocks</u>	<u>76.10</u>	<u>0</u>	<u>76.10</u>

Table 7. Carbon Intensity Lookup Table for Diesel and Fuels that Substitute for Diesel

<u>Fuel</u>	<u>Pathway Description</u>	<u>Carbon Intensity Values (gCO₂e/MJ)</u>		
		<u>Direct Emissions</u>	<u>Land Use or Other Indirect Effect</u>	<u>Total</u>
<u>Diesel</u>	<u>ULSD – based on the average crude oil delivered to California refineries and average California refinery efficiencies</u>	<u>94.71</u>	<u>0</u>	<u>94.71</u>
<u>Biodiesel</u>	<u>Pathways for conversion of Midwest soybeans to biodiesel (fatty acid methyl esters -FAME)</u>	<u>[pending GTAP analysis]</u>		
	<u>Conversion of waste oils (Used Cooking Oil) to biodiesel (fatty acid methyl esters -FAME) where “cooking” is required</u>	<u>13.70</u> <u>15.84</u>	<u>0</u>	<u>13.70</u> <u>15.84</u>
	<u>Conversion of waste oils (Used Cooking Oil) to biodiesel (fatty acid methyl esters -FAME) where “cooking” is not required</u>	<u>11.76</u>	<u>0</u>	<u>11.76</u>
<u>Renewable Diesel</u>	<u>Pathways for conversion of Midwest soybeans to renewable diesel</u>	<u>[pending GTAP analysis]</u>		
	<u>Conversion of tallow to renewable diesel using higher energy use for rendering</u>	<u>20.70</u> <u>39.33</u>	<u>0</u>	<u>20.70</u> <u>39.33</u>
	<u>Conversion of tallow to renewable diesel using lower energy use for rendering</u>	<u>19.65</u>	<u>0</u>	<u>19.65</u>
<u>Compressed Natural Gas</u>	<u>California NG via pipeline; compressed in CA</u>	<u>67.70</u>	<u>0</u>	<u>67.70</u>
	<u>North American NG delivered via pipeline; compressed in CA</u>	<u>68.00</u>	<u>0</u>	<u>68.00</u>
	<u>Landfill gas (bio-methane) cleaned up to pipeline quality NG; compressed in CA</u>	<u>11.26</u>	<u>0</u>	<u>11.26</u>
	<u>Dairy Digester Biogas to CNG</u>	<u>13.45</u>	<u>0</u>	<u>13.45</u>
<u>Liquefied Natural Gas</u>	<u>North American NG delivered via pipeline; liquefied in CA using liquefaction with 80% efficiency</u>	<u>83.13</u>	<u>0</u>	<u>83.13</u>
	<u>North American NG delivered via pipeline; liquefied in CA using liquefaction with 90% efficiency</u>	<u>72.38</u>	<u>0</u>	<u>72.38</u>
	<u>Overseas-sourced LNG delivered as LNG to Baja; re-gasified then re-liquefied in CA using liquefaction with 80% efficiency</u>	<u>93.37</u>	<u>0</u>	<u>93.37</u>
	<u>Overseas-sourced LNG delivered as LNG to CA; re-gasified then re-liquefied in CA using liquefaction with 90% efficiency</u>	<u>82.62</u>	<u>0</u>	<u>82.62</u>
	<u>Overseas-sourced LNG delivered as LNG to CA; no re-gasification or re-liquefaction in CA</u>	<u>77.50</u>	<u>0</u>	<u>77.50</u>

	<u>Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 80% efficiency</u>	<u>26.3105</u>	<u>0</u>	<u>26.3105</u>
	<u>Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 90% efficiency</u>	<u>15.56</u>	<u>0</u>	<u>15.56</u>
	<u>Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 80% efficiency</u>	<u>28.5327</u>	<u>0</u>	<u>28.5327</u>
	<u>Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 90% efficiency</u>	<u>17.78</u>	<u>0</u>	<u>17.78</u>
<u>Electricity</u>	<u>California average electricity mix</u>	<u>124.10</u>	<u>0</u>	<u>124.10</u>
	<u>California marginal electricity mix of natural gas and renewable energy sources</u>	<u>104.701</u>	<u>0</u>	<u>104.701</u>
<u>Hydrogen</u>	<u>Compressed H₂ from central reforming of NG (includes liquefaction and re-gasification steps)</u>	<u>142.020</u>	<u>0</u>	<u>142.020</u>
	<u>Liquid H₂ from central reforming of NG</u>	<u>133.00</u>	<u>0</u>	<u>133.00</u>
	<u>Compressed H₂ from central reforming of NG (no liquefaction and re-gasification steps)</u>	<u>98.80</u>	<u>0</u>	<u>98.80</u>
	<u>Compressed H₂ from on-site reforming of NG</u>	<u>98.30</u>	<u>0</u>	<u>98.30</u>
	<u>Compressed H₂ from on-site reforming with renewable feedstocks</u>	<u>76.10</u>	<u>0</u>	<u>76.10</u>

(2) *Use of Lookup-Table Carbon-Intensity Values.*

(A) *For CARBOB, Gasoline and Diesel Fuel.*

For purposes of this section 95486(b)(2)(A), “2006 California baseline crude mix” means the total pool of crude oil supplied to California refiners in 2006; “included in the 2006 California baseline crude mix” means the crude oil constituted at least 2.0% of the 2006 California baseline crude mix, by volume, as shown by California Energy Commission records for 2006; and “high carbon-intensity crude oil” means any crude oil that has a total production and transport carbon-intensity value greater than 15.00 grams CO₂e/MJ.

The carbon intensity for a regulated party’s CARBOB, gasoline or a diesel fuel is determined as specified in section 95486(b)(2)(A)1. or 2. below, whichever applies:

1. *For CARBOB, Gasoline or Diesel Fuel Derived from Crude Oil That Is Either Included in the 2006 California Baseline Crude Mix or Is Not a High Carbon Intensity Crude Oil.*

If all of a regulated party’s CARBOB, gasoline or diesel fuel is derived from crude oil that is either:

- a. included in the 2006 California baseline crude mix, or
- b. not a high carbon-intensity crude oil,

the regulated party must use the average carbon intensity value shown in the Carbon Intensity Lookup Table for CARBOB, gasoline or diesel fuel.

2. *For All Other CARBOB, Gasoline or Diesel Fuel, Including Those Derived from High Carbon-Intensity Crude Oil (HCICO).*

Except as set forth in this provision, if any portion of a regulated party’s CARBOB, gasoline, or diesel fuel does not fall within section 95486(b)(2)(A)1. above (including those derived from high carbon-intensity crude oils), ~~the carbon intensity for the regulated party’s crude oil must be determined as follows in the order shown~~ the regulated party must calculate the deficits for CARBOB, gasoline, or diesel fuel, derived wholly or in part from crude oil subject to this provision, using the deficit calculation methodology and the process for determining the carbon intensity value described in paragraphs a. and b., respectively, below:

- ~~a. The carbon intensity value shown in the Lookup Table corresponding to the high carbon intensity crude oil's pathway;~~
- ~~b. Except as provided in c. below, if there is no carbon intensity value shown in the Lookup Table corresponding to the crude's pathway, the regulated party must propose a new pathway for its crude oil and obtain approval from the Executive Officer for the resulting pathway's carbon intensity pursuant to Method 2B as set forth in section 95486(d) and (f). For a specific calendar year, a regulated party that is subject to this provision must calculate deficits resulting from its gasoline, CARBOB, and diesel fuel derived from HCIGO and non-HCIGO feedstock relative to the carbon intensity standards for that calendar year as specified in section 95482(b) and (c). Accordingly, for purposes of section 95485, the regulated party must calculate separately the deficits for CARBOB, gasoline, and diesel fuel derived from high carbon intensity crude oil (HCIGO) feedstock and CARBOB, gasoline, and diesel fuel derived from non-HCIGO feedstock, as follows:~~

~~$$\text{Deficits}_{\text{non-HCIGO}}^{XD} (MT) = (CI_{\text{Standard}}^{XD} - CI_{\text{non-HCIGO}}^{XD}) \times E_{\text{non-HCIGO}}^{XD} \times C$$~~

~~and~~

~~$$\text{Deficits}_{\text{HCIGO}}^{XD} (MT) = (CI_{\text{Standard}}^{XD} - CI_{\text{HCIGO}}^{XD}) \times E_{\text{HCIGO}}^{XD} \times C$$~~

~~where,~~

~~*i* is the finished fuel or blendstock index;~~

~~$\text{Deficits}_{\text{non-HCIGO}}^{XD} (MT)$ means the amount of LCFS deficits incurred (a negative value), in metric tons, by a fuel or blendstock that is derived from non-HCIGO feedstock produced in or imported into California during a specific calendar year;~~

~~$\text{Deficits}_{\text{HCIGO}}^{XD} (MT)$ means the amount of LCFS deficits incurred (a negative value), in metric tons, by a fuel or blendstock that is derived from HCIGO feedstock is produced in or imported into California during a specific calendar year;~~

$CI_{non-HCICO}^{XD}$ is the adjusted carbon intensity value of a fuel or blendstock, in gCO₂E/MJ, derived from non-HCICO feedstock produced in or imported into California during a specific calendar year, where the carbon intensity of the fuel or blendstock is adjusted by dividing it with the EER as described in section 95485(a)(3)(B);

CI_{HCICO}^{XD} is the adjusted carbon intensity value of a fuel or blendstock, in gCO₂E/MJ, derived from HCICO feedstock produced in or imported into California during a specific calendar year, where the carbon intensity of the fuel or blendstock is adjusted by dividing it with the EER as described in section 95485(a)(3)(B);

a. Deficit Calculation When HCICO Is Used.

i. Calculation Methodology. For purposes of this section, a regulated party for CARBOB, gasoline or diesel fuel, derived wholly or in part from HCICO feedstock, must calculate separately the base deficit and incremental deficit for each fuel or blendstock, as specified in this provision. The base deficit must be calculated for the entire volume of fuel or blendstock derived from the mix of HCICO and all other crude, and the incremental deficit must be calculated only for the volume of fuel or blendstock derived from the HCICO, as follows:

$$\underline{\underline{Deficits_{Base_i}^{XD} (MT) = (CI_{Standard_i}^{XD} - CI_{Avg_i}^{XD}) \times E_{Total_i}^{XD} \times C}}$$

and

$$\underline{\underline{Deficits_{Incremental_i}^{XD} (MT) = (CI_{Avg_i}^{XD} - CI_{HCICO_i}^{XD}) \times E_{HCICO_i}^{XD} \times C}}$$

where,

i is the finished fuel or blendstock index;

$Deficits_{Base}^{XD} (MT)$ means the amount of LCFS deficits incurred (a negative value), in metric tons, by the volume of gasoline, CARBOB, or diesel fuel that is derived from all petroleum feedstock, including HCICO, produced in or imported into California during a specific calendar year;

$Deficits_{Incremental}^{XD}$ (MT) means the amount of LCFS deficits incurred (a negative value), in metric tons, by the volume of a fuel or blendstock that is derived wholly from HCICO feedstock produced in or imported into California during a specific calendar year;

$CI_{Standard}^{XD}$ has the same meaning as specified in section 95485(a)(3)(A);

CI_{Avg}^{XD} is the adjusted average carbon-intensity value of a fuel or blendstock, in gCO₂E/MJ, derived from all petroleum feedstock, including HCICO, produced in or imported into California during a specific calendar year, where the carbon intensity of the fuel or blendstock is adjusted by dividing it with the EER as described in section 95485(a)(3)(B). For purposes of this provision, CI_{Avg}^{XD} for CARBOB (XD = “gasoline”) and diesel fuel (XD = “diesel”) is the total carbon intensity value for CARBOB and diesel (ULSD) set forth in the Carbon Intensity Lookup Table, respectively;

CI_{HCICO}^{XD} is the adjusted actual carbon-intensity value of a fuel or blendstock, in gCO₂E/MJ, derived from HCICO feedstock produced in or imported into California during a specific calendar year, where the carbon intensity of the fuel or blendstock, as determined pursuant to paragraph ii. below, is adjusted by dividing it with the EER as described in section 95485(a)(3)(B);

$E_{non-HCICO}^{XD}$ E_{Total}^{XD} is the adjusted total amount of fuel energy, in MJ, from gasoline (XD=“gasoline”) or diesel (XD=“diesel”), derived from ~~non-HCICO~~ all petroleum feedstock produced in or imported into California during a specific calendar year, where the total amount of fuel energy of the fuel is adjusted by multiplying it with the EER as described in section 95485(a)(3)(C). Where the petroleum feedstock is comprised entirely of HCICO, E_{Total}^{XD} equals E_{HCICO}^{XD} ;

E_{HCICO}^{XD} is the adjusted total amount of fuel energy, in MJ, from gasoline (XD=“gasoline”) or diesel (XD=“diesel”), derived from HCICO feedstock produced in or imported into California during a specific calendar year, where the total

amount of fuel energy of the fuel is adjusted by multiplying it with the EER as described in section 95485(a)(3)(C); and

C has the same meaning as specified in section 95485(a)(3)(A).

ii. *Determination of Carbon Intensity Value for HCICO-derived Products.* CI_{HCICO}^{XD}

A regulated party subject to section 95486(b)(2)(A) must determine the carbon intensity value for its CARBOB, gasoline or diesel fuel using any of the following that applies, subject to Executive Officer approval as specified in section 95485(a)(2) or as otherwise specified.

- I. The carbon intensity value shown in the Carbon Intensity Lookup Table corresponding to the HCICO's pathway; or
- II. Except as provided in paragraph III. below, if there is no carbon intensity value shown in the Carbon Intensity Lookup Table corresponding to the HCICO's pathway, the regulated party must propose a new pathway for its HCICO and obtain approval from the Executive Officer for the resulting pathway's carbon intensity pursuant to Method 2B as set forth in section 95486(d) and (f); or
- III. The regulated party may, upon written Executive Officer approval pursuant to section 95486(f), use the average carbon intensity value in the Carbon Intensity Lookup Table for CARBOB, gasoline or diesel fuel, provided the GHG emissions from the fuel's crude production and transport steps are subject to control measures, such as carbon capture-and-sequestration (CCS) or other methods, which reduce the crude oil's production and transport carbon-intensity value to 15.00 grams CO₂e/MJ or less, as determined by the Executive Officer.

(B) *For All Other Fuels and Blendstocks.*

Except as provided in section 95486(c) and (d), for each of a regulated party's fuels, the regulated party must use the carbon intensity value in Lookup Table that most closely corresponds to the production process used to produce the regulated party's fuel. The Lookup Table carbon

intensity value selected by the regulated party is subject to approval by the Executive Officer.

For example, if one of the regulated party's fuels is ethanol produced from the fermentation of cellulosic feedstock derived from farmed trees, the regulated party would use the total carbon intensity value in the Lookup Table (i.e., the last column in Lookup Table) corresponding to the applicable Fuel (Ethanol) and Feedstock (Cellulosic, Farmed Trees, Fermentation).

(c) *Method 2A – Customized Lookup Table Values (Modified Method 1).*

Under Method 2A, the regulated party may propose, for the Executive Officer's written approval pursuant to section 95486(f), modifications to one or more inputs to the CA-GREET model used to generate the carbon intensity values in the Method 1 Lookup Table.

For any of its transportation fuels subject to the LCFS regulation, a regulated party may propose the use of Method 2A to determine the fuel's carbon intensity, as provided in this section 95486(c). For each fuel subject to a proposed Method 2A, the regulated party must obtain written approval from the Executive Officer for its proposed Method 2A before the regulated party may use Method 2A for determining the carbon intensity of the fuel. The Executive Officer's written approval may include more than one of a regulated party's fuels under Method 2A.

The Executive Officer may not approve a proposed Method 2A unless the regulated party and its proposed Method 2A meet the scientific defensibility, "5-10" substantiality, and data submittal requirements specified in section 95486(e)(1) through (3) and the following requirements:

- (1) The proposed modified CA-GREET inputs must accurately reflect the conditions specific to the regulated party's production and distribution process;
- (2) The proposed Method 2A uses only the inputs that are already incorporated in CA-GREET and does not add any new inputs (e.g., refinery efficiency); and
- (3) The regulated party must request the Executive Officer to conduct an analysis or modeling to determine the new pathway's impact on total carbon intensity due to indirect effects, including land-use changes, as the Executive Officer deems appropriate. The Executive Officer will use the GTAP model, which is incorporated by reference, or other model determined by the Executive Officer to be at least equivalent to the GTAP model.

(d) *Method 2B – New Pathway Generated by California-Modified GREET (v. 1.8b).*

Under Method 2B, the regulated party proposes for the Executive Officer's written approval the generation of a new pathway using the CA-GREET as provided for in this provision. The Executive Officer's approval is subject to the requirements as specified in section 95486(f) and the following requirements:

- (1) For purposes of this provision, "new pathway" means the proposed full fuel-cycle (well-to-wheel) pathway is not already in the ARB Lookup Table specified in section 95486(b)(1), as determined by the Executive Officer;
- (2) The regulated party must demonstrate to the Executive Officer's satisfaction that the CA-GREET can be modified successfully to generate the proposed new pathway. If the Executive Officer determines that the CA-GREET model cannot successfully generate the proposed new pathway, the proponent-regulated party must use either Method 1 or Method 2A to determine its fuel's carbon intensity;
- (3) The regulated party must identify all modified parameters for use in the CA-GREET for generating the new pathway;
- (4) The CA-GREET inputs used to generate the new pathway must accurately reflect the conditions specific to the regulated party's production and marketing process; and
- (5) The regulated party must request the Executive Officer to conduct an analysis or modeling to determine the new pathway's impact on total carbon intensity due to indirect effects, including land-use changes, as the Executive Officer deems appropriate. The Executive Officer will use the GTAP model, which is incorporated by reference, or other model determined by the Executive Officer to be at least equivalent to the GTAP model.

(e) *Scientific Defensibility, Burden of Proof, Substantiality, and Data Submittal Requirements and Procedure for Approval of Method 2A or 2B.*

For a proposed Method 2A or 2B to be approved by the Executive Officer, the regulated party must demonstrate that the method is both scientifically defensible and, for Method 2A, meets the substantiality requirement, as specified below:

- (1) *Scientific Defensibility and Burden of Proof.* This requirement applies to both Method 2A and 2B. A regulated party that proposes to use Method 2A or 2B bears the sole burden of demonstrating to the Executive Officer's satisfaction, that the proposed method is scientifically defensible.

- (A) For purposes of this regulation, “scientifically defensible” means the method has been demonstrated to the Executive Officer as being at least as valid and robust as Method 1 for calculating the fuel’s carbon intensity.
 - (B) Proof that a proposed method is scientifically defensible may rely on, but is not limited to, publication of the proposed Method 2A or 2B in a major, well-established and peer-reviewed scientific journal (e.g., Science, Nature, Journal of the Air and Waste Management Association, Proceedings of the National Academies of Science).
- (2) *“5-10” Substantiality Requirement.* This requirement applies only to a proposed use of Method 2A, as provided in section 95486(c). For each of its transportation fuels for which a regulated party is proposing to use Method 2A, the regulated party must demonstrate, to the Executive Officer’s satisfaction, that the proposed Method 2A meets both of the following substantiality requirements:
- (A) The source-to-tank carbon intensity for the fuel under the proposed Method 2A is at least 5.00 grams CO₂-eq/MJ less than the source-to-tank carbon intensity for the fuel as calculated under Method 1. “Source-to-tank” means all the steps involved in the growing/extraction, production and transport of the fuel to California, but it does not include the carbon intensity due to the vehicle’s use of the fuel; “source-to-tank” may also be referred to as “well-to-tank” or “field-to-tank.”
 - (B) The regulated party can and is expected to provide in California more than 10 million gasoline gallon equivalents per year (1,156 MJ) of the regulated fuel. This requirement applies to a transportation fuel only if the total amount of the fuel sold in California from all providers of that fuel exceeds 10 million gasoline gallon equivalents per year.
- (3) *Data Submittal.* This requirement applies to both Method 2A and 2B. A regulated party proposing Method 2A or 2B for a fuel’s carbon intensity value must meet all the following requirements:
- (A) Submit to the Executive Officer all supporting data, calculations, and other documentation, including but not limited to, flow diagrams, flow rates, CA-GREET calculations, equipment description, maps, and other information that the Executive Officer determines is necessary to verify the proposed fuel pathway and how the carbon intensity value proposed for that pathway was derived;

- (B) All relevant data, calculations, and other documentation in (A) above must be submitted electronically, such as via email or an online web-based interface, whenever possible;
 - (C) The regulated party must specifically identify all information submitted pursuant to this provision that is a trade secret; “trade secret” has the same meaning as defined in Government Code section 6254.7; and
 - (D) The regulated party must not convert spreadsheets in CA-GREET containing formulas into other file formats.
- (f) *Approval Process.* To obtain Executive Officer approval of a proposed Method 2A or 2B, the regulated party must submit an application as follows:
- (1) *General Information Requirements.*
 - (A) For a proposed use of Method 2A, the regulated party’s application must contain all the information specified in section 95486(c), (e), and (f)(2);
 - (B) For a proposed use of Method 2B, the regulated party’s application must contain all the information specified in section 95486(d), (e)(1), (e)(3), and (f)(2).
 - (2) *Use of Method 2A or 2B Prohibited Without Executive Officer Approval.*

The regulated party must obtain the Executive Officer’s written approval of its application submitted pursuant to section 95486(f)(1) above before using a proposed Method 2A or 2B for any purpose under the LCFS regulation. Any use of a proposed Method 2A or 2B before Executive Officer approval is granted shall constitute a violation of this regulation for each day that the violation occurs. A regulated party that submits any information or documentation in support of a proposed Method 2A or 2B must include a written statement clearly showing that the regulated party understands and agrees to the following:

- (A) All information not identified in 95486(e)(3)(C) as trade secrets are subject to public disclosure pursuant to 17 CCR §§ 91000-91022 and the California Public Records Act (Government Code section 6250 et seq.); and
- (B) If the application is approved by the Executive Officer, the carbon intensity values, associated parameters, and other fuel pathway-related information obtained or derived from the application will be

incorporated into the Method 1 Lookup Table for use on a free, unlimited license, and otherwise unrestricted basis by any person;

- (3) *Completeness/Incompleteness Determination.* After receiving an application submitted under this section, the Executive Officer shall determine whether the application is complete within 15 ~~calendar~~ work days. If the Executive Officer determines the application is incomplete, the Executive Officer shall notify the regulated party accordingly and identify the deficiencies in the application. The deadline set forth in this provision shall also apply to supplemental information submitted in response to an incompleteness determination by the Executive Officer.
- (4) *Public Review.* After determining an application is complete, the Executive Officer shall publish the application and its details on ARB's internet website at <http://www.arb.ca.gov/fuels/lcfs/lcfs.htm> and make it available for a ~~minimum 30-calendar day~~, public-review process in accordance with applicable provisions of the Administrative Procedure Act (Government Code section 11346 et seq.). The Executive Officer shall treat all trade secrets specifically identified by the regulated party under section 95486(e)(3)(C) above in accordance with 17 CCR §§ 91000-91022 and the California Public Records Act (Government Code section 6250 et seq.).
- (5) *Final Action.* ~~Within 45 calendar days after the public review process set forth in subsection (f)(3) above ends,~~ The Executive Officer shall take final action to approve or disapprove an application submitted pursuant to this subsection (f) in accordance with applicable provisions of the Administrative Procedure Act (Government Code section 11346 et seq.). The Executive Officer shall notify the regulated party accordingly and publish the final action on ARB's internet website at <http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>. If the final action is approval of a new carbon intensity value and associated fuel pathway, the Executive Officer shall update the Lookup Table to reflect the new value accordingly pursuant to applicable provisions of the Administrative Procedure Act (Government Code section 11346 et seq.). If the Executive Officer disapproves an application, the disapproval shall identify the basis for the disapproval.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, 43013, and 43018, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, 43013, and 43018, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95487. Requirements for Multimedia Evaluation

(a) *Pre-Sale Approval Requirement.*

Except as provided for in section 95487(c), 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 95487(b) 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)-(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 95487(a)(1) 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 95487 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 (June 2008)*, which can be downloaded at <http://www.arb.ca.gov/fuels/multimedia/080608guidance.pdf>, and which is incorporated herein by reference.

(c) *Exemptions.*

- (1) *Negative Declaration For ARB-Adopted New Or Amended Fuel Specifications.*

The requirements of this section 95487 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, LNG, and Hydrogen.*

The requirements of this section 95487 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 currently subject to this provision include CaRFG, diesel fuel, E100, E85, CNG, LNG, and hydrogen. This provision 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, this provision shall no longer apply for that fuel.

- (3) *Biomass-Based Diesel and Electricity.*

The requirements of this section 95487 do not apply to a regulated fuel that:

- (A) is subject to the Division of Measurement Standards' Engine Fuels Standards (4 CCR §4140 et seq.); but
- (B) is not subject to an ARB-adopted fuel specification.

Fuels currently subject to this provision include biomass-based diesel, and electricity. This provision 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, this provision shall no longer apply for that fuel.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, 43013, and 43018, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511,

~~43013, and 43018~~, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95488. Cap and Trade

(a) [This section is reserved for future use]

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, ~~43013, and 43018~~, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, ~~43013, and 43018~~, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95489. Regulation Review

~~The Executive Officer shall conduct a review of the implementation of the LCFS program by January 1, 2012. The Executive Officer shall determine the scope and content of the review.~~

As provided in this section, the Executive Officer shall conduct two reviews of the implementation of the LCFS program. The first review shall be completed and presented to the Board by January 1, 2012; the second review shall be completed and presented to the Board by January 1, 2015.

(a) The scope of each review shall include, at a minimum, consideration of the following areas:

- (1) The LCFS program's progress against LCFS targets;
- (2) Adjustments to the compliance schedule, if needed;
- (3) Advances in full, fuel-lifecycle assessments;
- (4) Advances in fuels and production technologies, including the feasibility and cost-effectiveness of such advances;
- (5) The availability and use of ultralow carbon fuels to achieve the LCFS standards and advisability of establishing additional mechanisms to incentivize higher volumes of these fuels to be used;
- (6) An assessment of supply availabilities and the rates of commercialization of fuels and vehicles;
- (7) The LCFS program's impact on the State's fuel supplies;
- (8) The LCFS program's impact on state revenues, consumers, and economic growth;
- (9) An analysis of the public health impacts of the LCFS at the state and local level, including the impacts of local infrastructure or fuel production facilities in place or under development to deliver low carbon fuels, using an ARB approved method of analysis developed in consultation with public health experts from academia and other government agencies;

- (10) An assessment of the air quality impacts on California associated with the implementation of the LCFS; 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;
- (11) Identification of hurdles or barriers (e.g., permitting issues, infrastructure adequacy, research funds) and recommendations for addressing such hurdles or barriers;
- (12) Significant economic issues; fuel adequacy, reliability, and supply issues; and environmental issues that have arisen; and
- (13) The advisability of harmonizing with international, federal, regional, and state LCFS and lifecycle assessments.
- (b) The Executive Officer shall establish an LCFS advisory panel by July 1, 2010. Panel participants should include representatives of the California Energy Commission; the California Public Utilities Commission; fuel providers; storage and distribution infrastructure owner/operators; consumers; engine and vehicle manufacturers; environmental justice organizations; environmental groups; academia; public health; and other stakeholders and government agencies as deemed appropriate by the Executive Officer. The advisory panel shall participate in the reviews of the LCFS program required by this section, and the Executive Officer shall solicit comments and evaluations from the panel on the ARB staff's assessments of the areas and elements specified in section (a) above, as well as on other topics relevant to the periodic reviews.
- (c) The Executive Officer shall conduct the reviews specified above in a public process and shall conduct at least two public workshops for each review prior to presenting the reports to the Board. In presenting the results of each program review to the Board, 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, 41510, 41511, 43043, and 43048, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, 43043, and 43048, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).

Section 95490. Enforcement Protocols

Notwithstanding section 95484(c) and (d), the Executive Officer may enter into an enforceable written protocol with any person to identify conditions under which the person may lawfully meet the recordkeeping, reporting, or demonstration of physical pathway requirements in section 95484(c) and (d). The Executive Officer may only enter into such a protocol if he or she reasonably determines

that the provisions in the protocol are necessary under the circumstances and at least as effective as the applicable provisions specified in section 95484(c) and (d). Any such protocol shall include the person's agreement to be bound by the terms of the protocol.

NOTE: Authority cited: Sections 38510, 38560, 38560.5, 38571, 38580, 39600, 39601, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975). Reference cited: Sections 38501, 38510, 38560, 38560.5, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516, 41510, 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3rd 411, 121 Cal.Rptr. 249 (1975).