State of California
Office of Administrative Law

In re: **Air Resources Board**	NOTICE OF APPROVAL OF REGULATORY ACTION
Regulatory Action:	**Government Code Section 11349.3**
Title 17, California Code of Regulations	**OAL File No. 2012-1010-02 S**
Adopt sections: 95480.2, 95480.3, 95480.4, 95480.5 **Amend sections:** 95480.1, 95481, 95482, 95484, 95485, 95486, 95488, 95490 **Repeal sections:**	

The California Air Resources Board (ARB) adopted the Low Carbon Fuel Standard (LCFS) in 2010. This program is designed to force a reduction of 10 percent in the average carbon density of transportation fuels by 2020. This is designed to reduce greenhouse emissions by reducing the full fuel-cycle, carbon intensity of the transportation fuel pool used in California. This rulemaking amends the LCFS by adding reporting requirements, credit trading, regulated parties opt-in and opt-out provisions. A computer model, the Oil Production Greenhouse Gas Emissions Estimator is incorporated by reference. This model is designed to generate carbon intensity values for the crude oil production and transport to California refineries. Additionally, ARB is establishing an application process for innovative crude production methods. If an innovative crude production method is approved the regulated party can receive credit under the LCFS regulations for use of that method. There are numerous other clarifying changes made to the regulations.

OAL approves this regulatory action pursuant to section 11349.3 of the Government Code. This regulatory action becomes effective on 11/26/2012.

Date: 11/26/2012

Peggy J. Gibson
Senior Counsel

For: DEBRA M. CORNEZ
Director

Original: James Goldstene
Copy: Amy Whiting

STATE OF CALIFORNIA--OFFICE OF ADMINISTRATIVE LAW

NOTICE PUBLICATION/REGULATIONS SUBMISSION

REGULAR

(See instructions on reverse)

For use by Secretary of State only

STD. 400 (REV. 01-09)

OAL FILE NUMBERS	NOTICE FILE NUMBER	REGULATORY ACTION NUMBER	EMERGENCY NUMBER
	Z-2011-1018-13	2012-1010-02S	

ENDORSED FILED IN THE OFFICE OF THE SECRETARY OF STATE

2012 NOV 26 PM 2:47

DEBRA BOWEN
SECRETARY OF STATE

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RECEIVED FOR FILING PUBLICATION DATE		2012 OCT 10 PM 4:38 OFFICE OF ADMINISTRATIVE LAW
OCT 18 '11	OCT 28 '11	
Office of Administrative Law		
NOTICE		REGULATIONS

AGENCY WITH RULEMAKING AUTHORITY: Air Resources Board

AGENCY FILE NUMBER (If any):

A. PUBLICATION OF NOTICE (Complete for publication in Notice Register)

1. SUBJECT OF NOTICE	TITLE(S)	FIRST SECTION AFFECTED	2. REQUESTED PUBLICATION DATE
Low Carbon Fuel Standard 2011	17	95480.1	October 28, 2011

3. NOTICE TYPE	4. AGENCY CONTACT PERSON	TELEPHONE NUMBER	FAX NUMBER (Optional)
[X] Notice re Proposed Regulatory Action [ ] Other	Amy Whiting	(916) 322-6533	(916) 322-3928

OAL USE ONLY	ACTION ON PROPOSED NOTICE	NOTICE REGISTER NUMBER	PUBLICATION DATE
	[ ] Approved as Submitted [ ] Approved as Modified [ ] Disapproved/ Withdrawn	2011 #32	10/28/11

B. SUBMISSION OF REGULATIONS (Complete when submitting regulations)

1a. SUBJECT OF REGULATION(S): Low Carbon Fuel Standard 2011

1b. ALL PREVIOUS RELATED OAL REGULATORY ACTION NUMBER(S):

2. SPECIFY CALIFORNIA CODE OF REGULATIONS TITLE(S) AND SECTION(S) (Including title 26, if toxics related)

SECTION(S) AFFECTED (List all section number(s) individually. Attach additional sheet if needed.)

ADOPT: 95480.2, 95480.3, 95480.4, and 95480.5

AMEND: * 95482 95480.1, 95481, 95484, 95485, 95486, 95488, and 95490

REPEAL:

TITLE(S): 17 *

3. TYPE OF FILING

- [X] Regular Rulemaking (Gov. Code §11346)
- [ ] Resubmittal of disapproved or withdrawn nonemergency filing (Gov. Code §§11349.3, 11349.4)
- [ ] Emergency (Gov. Code, §11346.1(b))
- [ ] Certificate of Compliance: The agency officer named below certifies that this agency complied with the provisions of Gov. Code §§11346.2-11347.3 either before the emergency regulation was adopted or within the time period required by statute.
- [ ] Resubmittal of disapproved or withdrawn emergency filing (Gov. Code, §11346.1)
- [ ] Emergency Readopt (Gov. Code, §11346.1(h))
- [ ] File & Print
- [ ] Other (Specify) _____
- [ ] Changes Without Regulatory Effect (Cal. Code Regs., title 1, §100)
- [ ] Print Only

4. ALL BEGINNING AND ENDING DATES OF AVAILABILITY OF MODIFIED REGULATIONS AND/OR MATERIAL ADDED TO THE RULEMAKING FILE (Cal. Code Regs. title 1, §44 and Gov. Code §11347.1)

4/10/12 - 4/25/12, 8/9/12 - 8/24/12, and 9/17/12 - 10/2/12

5. EFFECTIVE DATE OF CHANGES (Gov. Code, §§ 11343.4, 11346.1(d); Cal. Code Regs., title 1, §100)

- [ ] Effective 30th day after filing with Secretary of State
- [X] Effective on filing with Secretary of State
- [ ] §100 Changes Without Regulatory Effect
- [ ] Effective other (Specify) _____

6. CHECK IF THESE REGULATIONS REQUIRE NOTICE TO, OR REVIEW, CONSULTATION, APPROVAL OR CONCURRENCE BY, ANOTHER AGENCY OR ENTITY

- [ ] Department of Finance (Form STD. 399) (SAM §6660)
- [ ] Fair Political Practices Commission
- [ ] State Fire Marshal
- [ ] Other (Specify) N/A

7. CONTACT PERSON	TELEPHONE NUMBER	FAX NUMBER (Optional)	E-MAIL ADDRESS (Optional)
Amy J. Whiting, Regulations Coord.	(916) 322-6533	(916) 322-3928	awhiting@arb.ca.gov

8. **I certify that the attached copy of the regulation(s) is a true and correct copy of the regulation(s) identified on this form, that the information specified on this form is true and correct, and that I am the head of the agency taking this action, or a designee of the head of the agency, and am authorized to make this certification.**

SIGNATURE OF AGENCY HEAD OR DESIGNEE: [signature] DATE: 10/10/2012

TYPED NAME AND TITLE OF SIGNATORY: James N. Goldstene, Executive Officer

* Correction made pursuant to agency authorization. 11/26

For use by Office of Administrative Law (OAL) only

ENDORSED APPROVED

NOV 26 2012

Office of Administrative Law

FINAL REGULATION ORDER

Note: The original regulatory text is shown in plain type. The amendments are shown in underline and ~~strikethrough~~ to indicate additions and deletions, respectively. All other portions of the LCFS regulation remain unchanged and are indicated by the symbol "* * * * *" for reference.

Amend sections 95480.1, 95481, 95484, 95485, 95486, 95488, and 95490, title 17, California Code of Regulations (CCR), to read as follows:

Adopt new sections 95480.2, 95480.3, 95480.4, and 95480.5, title 17, CCR, to read as follows:

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

Subarticle 7. Low Carbon Fuel Standard

§ 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(bc), (cd) and (de) 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 ("opt-in 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. A fuel provider for an alternative fuel listed below may generate LCFS credits for that fuel only by electing to opt into the LCFS as a regulated party pursuant to section 95480.3 and meeting the requirements of this regulation: ~~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, title 13, CCR, § 2260 et seq.), the California diesel fuel regulations (title 13, CCR, §§ 2281-2285 and title 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.

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

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

§ 95480.2. Persons Eligible for Opting Into the LCFS Program.

Only a person who meets one or more of the following criteria can elect to opt into the LCFS program, thereby becoming the regulated party in the LCFS program for a specified volume of fuel ("opt in" and "opt into" include the past, present, and future tenses):

(a) A person who provides a fuel specified in section 95480.1(b) and meets the requirements of section 95484(a)(5), (a)(6), or (a)(7), whichever applies to that fuel;

(b) An out-of-state producer of oxygenate for blending with CARBOB or gasoline, or biomass-based diesel for blending with CARB diesel, who is not otherwise already subject to the LCFS regulation as an importer. An opt-in regulated party under this subsection may retain the compliance obligation, for a specific volume of fuel or blendstock, only if that person sells the fuel to another regulated party.

(c) A person who is in the distribution/marketing chain of imported fuel and is positioned on that chain between the producer under (b) and the importer ("intermediate entity"). The intermediate entity is subject to the following requirements:

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

(A) The person received ownership of the fuel for which the person is claiming to generate LCFS credits;

(B) Either:

1. The person received the LCFS compliance obligation from a producer that opted in under section 95480.2(b); or
2. The producer did not opt in under section 95480.2(b).

(C) The person actually delivered the fuel or caused the fuel to be delivered to California;

(D) The fuel delivered under (C) is shown to have been sold for use in California or was otherwise actually used in California; and

(E) The person is not otherwise already subject to the LCFS regulation as a regulated party.

(2) The demonstrations in (1)(A) through (E) above must be made for the specific volume of fuel upon which the person first elects to opt into the LCFS. For subsequent volumes of fuel for which the person is claiming to be the regulated party pursuant to this subsection (c), the person must retain documentation to support the demonstrations required in (1)(A) through (E) and must submit such documentation to the Executive Officer within 30 calendar days upon request.

(d) The gas company, utility, or energy service provider that supplies natural gas ("natural gas supplier") to a person that falls within the provisions of section 95484(a)(5)(A)1.a or (5)(A)2. The natural gas supplier must provide written documentation to the Executive Officer demonstrating all the following before opting in to the LCFS:

(1) The person who falls within the provisions of section 95484(a)(5)(A)1.a. or (5)(A)2. understands that it has the ability to opt into the LCFS program as a regulated party under section 95480.2(a);

(2) The person in (1) has affirmatively elected not to become a regulated party in the LCFS program;

(3) The person in (1) understands and agrees that the election in (2) is irrevocable unless otherwise specified in a written contract between that person and the natural gas supplier; and

(4) As a consequence of the election in (2), the person in (1) understands and agrees that all LCFS credits generated from the sale of CNG dispensed through that person's natural gas vehicle fueling equipment shall belong to the natural gas supplier, unless otherwise specified in a written contract between the person and the natural gas supplier.

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

§ 95480.3. Procedure for Opting Into and Opting Out of the LCFS Program.

Opting into and opting out of the LCFS program is available only to a person that is eligible under section 95480.2. The procedure for opting into and opting out of the LCFS for such a person is set forth as follows.

(a) *Opting In.*

(1) Opting into the LCFS program becomes effective when the fuel provider registers with ARB, pursuant to this section, as a regulated party in the LCFS Reporting Tool (LRT), by providing the organization name, organization address, organization federal employer identification number, primary contact name, telephone number and email address.

(2) Registration under subsection (a)(1) above as a regulated party means that the fuel provider understands the requirements of the LCFS regulation and has agreed to be subject to all the requirements and provisions of the LCFS regulation as a regulated party, pursuant to section 95480.5, in exchange for gaining the ability to generate and trade LCFS credits.

(b) *Selection of Carbon Intensity Value.*

As part of its registration, the opt-in regulated party must elect for each of its opt-in fuels a carbon intensity (CI) value using one of the following methods:

1. Method 1, pursuant to section 95486(a) and (b), if an applicable fuel pathway and CI value exist in the Lookup Table in section 95486(b) at the time of selection;

2. Method 2A or 2B, pursuant to section 95486(c)-(f); or

3. In lieu of (1) or (2) above, the regulated party for an opt-in fuel subject to section 95480.1(b) may choose whichever 2020 CI value specified in section 95482(b) and (c), for gasoline and diesel substitutes, respectively, applies to that opt-in fuel. A regulated party choosing a CI value pursuant to this paragraph (3) must use an energy economy ratio (EER) in its quarterly and annual reports that is set to a value of 1.0. Selection of a CI value pursuant to this paragraph does not preclude an opted-in regulated party from pursuing approval of a Method 2A or 2B application at the same or later time, nor does it preclude the regulated party from using Method 1 when an applicable fuel pathway and CI value are incorporated into the Lookup Table.

(c) *Opting Out.*

A fuel provider, who elected to become a regulated party by opting into the LCFS pursuant to subsection (a) above, may decide later to return to exempt status under section 95480.1(b)(1) ("opt out"). For an election to opt out of the LCFS regulation to be effective, the regulated party must complete all actions specified below, with the completed actions documented in writing and submitted to ARB as specified below:

(1) *90 Days before Opt-Out Date.*

A. Provide ARB with a 90-day written notice of intent to opt out and the anticipated opt-out effective date;

B. Provide ARB with any outstanding quarterly progress report (for the quarter in which the opt-out will occur) and annual compliance report (covering January 1st of the year to the date of the opt-out notice); and

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

(2) *Effective Opt-Out Date.*

Eliminate all remaining deficits and provide verification by email or regular mail that opt out occurred and all deficits have been eliminated. The

Executive Office shall confirm receipt of the notification within 3 business days. Any credits that remain in the regulated party's account at the time of the opt out shall be forfeited.

(3) *30 Days after Opt-Out Date.*

A. Identify in writing the amount and transferee (if applicable) of any LCFS credits generated between the 30-day notice and the date of opt-out;

B. Verify in writing that the former regulated party's deficit balance is zero as of the date of opt out. The verification must be signed by an authorized company representative, who must attest that the company will not sell, trade, or otherwise transact any LCFS credits after the opt-out date;

C. Update the quarterly and annual compliance reports submitted with the 30-day notice, as needed, to reflect any changes that occurred during the period between the notice and the actual opt-out date.

(4) *December 31st of the Year of Opt Out and the Following Year.*

Confirm in writing that the former regulated party remains opted out of the LCFS program and has not sold, traded, or otherwise transacted any LCFS credits since opt-out date.

(5) *Written Submittals.*

All notifications, identifications, and other documentation specified in this section 95480.3 must be submitted to:

Chief, Alternative Fuels Branch
Stationary Source Division
California Air Resources Board
1001 I Street, P.O. Box 2815
Sacramento, CA 95812-2815; or
The LRT Administrator: lrtadmin@arb.ca.gov.

(d) *Recordkeeping Requirements.*

The provisions and requirements in section 95484(c)(1) shall apply to any regulated party that has opted into the LCFS program, including a regulated party that has opted out of the LCFS regulation.

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

§ 95480.4. Multiple Parties Claiming to Be the Regulated Party for the Same Volume of Fuel.

There can only be one regulated party for a specific volume of fuel at any given time. In the event that more than one person has registered with ARB as the regulated party for the same volume of fuel, the following provisions shall apply:

(a) All LCFS credits generated from the volume of fuel at issue shall be made inaccessible to the regulated parties and placed by the Executive Officer into a holding account, including any such credits that have already been transferred to another person prior to being notified by the Executive Officer that the holding action has taken place;

(b) The regulated parties for a credit placed in a holding account pursuant to (a) shall not sell, offer for sale, trade, or otherwise transfer such a credit to another person until the holding action has been lifted by the Executive Officer;

(c) The Executive Officer shall lift the hold on a LCFS credit within 30 working days after initially placing the hold, and shall release the credit to a regulated party based on the following procedure in descending order of priority:

(1) The producer that has opted in under section 95480.2(b) and retained the compliance obligation; if this provision does not apply, then

(2) The intermediate entity (downstream of the producer) that has opted in under section 95480.2(c) and retained the compliance obligation; if this provision does not apply, then

(3) The importer, if neither (1) nor (2) applies, which has retained the compliance obligation pursuant to section 95484; if this provision does not apply, then

(4) The regulated party that received compliance obligation from the importer in (3) or a California producer pursuant to section 95484.

Paragraphs (c)(1), (2), (3), and (4) above notwithstanding, the parties above may, by the time ownership to the fuel or blendstock is transferred, specify by enforceable written contract pursuant to section 95484 the person to which the credits ultimately have been transferred and obligated.

(d) This section does not apply to regulated parties for electricity, which are subject to the provisions of section 95484(a)(6).

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

§ 95480.5. Jurisdiction.

(a) Any of the following actions shall conclusively establish a person's consent to be subject to the jurisdiction of the State of California, including the administrative authority of ARB and the jurisdiction of the Superior Courts of the State of California:

(1) Registration with ARB as a regulated party pursuant to the opt-in provisions in section 95480.3(a);

(2) Receipt of compensation of any kind, including sales proceeds and commissions, from any transfers of a LCFS credit made pursuant to section 95488; or

(3) Submittal of information to the Executive Officer pursuant to the crude oil innovative method provisions set forth in section 95486(b)(2)(A)4.

(b) Any person who, pursuant to section 95484(a)(1) through (4), inclusive, is the initial regulated party or a person to whom the compliance obligation has been transferred directly or indirectly from the initial regulated party, is subject to the jurisdiction of the State of California, including the administrative authority of ARB and the jurisdiction of the Superior Courts of the State of California, irrespective of whether the person has registered as a regulated party in the LRT.

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

§ 95481. Definitions and Acronyms.

(a) *Definitions.* For the purposes of sections 95480 through ~~9548~~95490, the definitions in Health and Safety Code sections 39010 through 39060 shall apply, except as otherwise specified in this section, sections 95480.1~~,~~ through 95480.5, or sections 95482 through 95489:

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

(~~1~~2) "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).

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

(~~2~~4) "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.

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

(~~3~~6) "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,* which is incorporated herein by reference;
(D) Intended for use in engines that are designed to run on conventional diesel fuel; and

(E) Derived from nonpetroleum renewable resources.

(47) "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.

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

(59) "Biogas (also called biomethane) means natural gas that ~~meets the requirements of 13 CCR §2292.5 and~~ is 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.

(610) "Biogas CNG" means CNG consisting solely of compressed biogas.

(711) "Biogas LNG" means LNG consisting solely of liquefied biogas.

(812) "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.

(913) "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.

(1014) "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.

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

(~~11~~16) "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~~17) "Compressed Natural Gas (CNG)" means natural gas that has been compressed to a pressure greater than ambient pressure ~~and meets the requirements of title 13, CCR, section 2292.5~~.

(~~13~~18) "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 carbon dioxide equivalent (CO2E), and are calculated pursuant to section 95485(a).

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

(~~14~~20) "Diesel Fuel" (also called conventional diesel fuel) has the same meaning as specified in title 13, CCR, section 2281(b).

(~~15~~21) "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~~22) "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.

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

A. a public utility as defined in the Public Utilities Code section 216 (referred to as an Investor Owned Utility or IOU); or
B. a local publicly owned electric utility (POU) as defined in Public Utilities Code section 224.3; or
C. an Electrical Cooperative (COOP) as defined in Public Utilities Code section 2776.

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

(~~17~~25) "Executive Officer" means the Executive Officer of the Air Resources Board, or his or her designee.

(~~18~~26) "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~~27) "Finished fuel" means a fuel that is used directly in a vehicle for transportation purposes without requiring additional chemical or physical processing.

(~~20~~28) "Fossil CNG" means CNG that is derived solely from petroleum or fossil sources, such as oil fields and coal beds.

(29) "Fuel Pathway Code" means the identifier in the LRT that applies to a specific fuel pathway in the Lookup Table, as determined pursuant to section 95486(a)(2).

(~~20.5~~30) "GTAP" or "GTAP Model" means the Global Trade Analysis Project Model (January 2010), which is hereby incorporated by reference, and is a software package comprised of:

(A) RunGTAP (February 2009), a visual interface for use with the GTAP databases (posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm in February 2009 and available for download at https://www.gtap.agecon.purdue.edu/products/rungtap/default.asp), which is hereby incorporated by reference;

(B) GTAP-BIO (February 2009), the GTAP model customized for corn ethanol (posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm in February 2009 and available with its components as a .zip file for download at http://www.arb.ca.gov/fuels/lcfs/gtapbio.zip); which is hereby incorporated by reference;

(C) GTP-SGR (February 2009), the GTAP model customized for sugarcane ethanol (posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm in February 2009 and available with its components as a .zip file for download at http://www.arb.ca.gov/fuels/lcfs/gtpsgr.zip), which is hereby incorporated by reference; and

(D) GTAP-SOY (January 2010), the compressed file containing the GTAP model customized for Midwest soybeans (posted at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm in January 2010 and available with its components as a .zip file for download at http://www.arb.ca.gov/fuels/lcfs/gtap-soy.zip), which is hereby incorporated by reference.

(~~21~~31) "HDV" means a heavy-duty vehicle that is rated at 14,001 or more pounds gross vehicle weight rating (GVWR).

(~~22~~32) "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.

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

(~~23~~34) "Import" means to bring a product from outside California into California.

(~~24~~35) "Importer" means the person who owns the liquid transportation fuel or blendstock, in the transportation equipment that held or carried the product, at the point the equipment entered California. For purposes of this definition, "transportation equipment" includes, but is not limited to, rail cars, cargo tanker trucks, and pipelines. ~~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~~36) "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(b~~c~~).

(~~27~~37) "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~~38) "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~~39) "Liquefied Natural Gas (LNG)" means natural gas that has been liquefied ~~and meets the requirements of title 13, CCR, section 2292.5~~.

(~~30~~40) "Liquefied petroleum gas (LPG or propane)" has the same meaning as defined in Vehicle Code section 380.

(41) "LRT Reporting Deadlines" means the quarterly and annual reporting dates specified in section 95484(b)(1).

(~~31~~42) "Motor vehicle" has the same meaning as defined in section 415 of the Vehicle Code.

(~~32~~43) "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 internal combustion engine vehicle (ICEV) uses both electricity and hydrogen as the fuel source and can be "refueled" using two separately distinct fueling ports.

(~~33~~44) "Multimedia evaluation" has the same meaning as specified in H&S section 43830.8(b) and (c).

(~~34~~45) "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.

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

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

(48) "Physical Pathway Code (PPC)" means the code that describes the applicable physical pathway, as defined in section 95484(c)(2).

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

(~~35~~50) "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.

(~~36~~51) "Producer" means, with respect to any liquid fuel, the person who owns the liquid fuel when it is supplied from the production facility. "Producer" includes an "out-of-state producer," which is a producer of a fuel that has its production facility for that fuel located outside California and has opted into the LCFS pursuant to section 95480.3.

(~~37~~52) "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.

(~~38~~53) "Public access fueling facility" means a fueling facility that is not a private access fueling dispenser.

(~~39~~54) "Regulated party" means a person who, pursuant to section 95484(a), must meet the average carbon intensity requirements in section 95482 or 95483.

(4055) "Renewable diesel" means a motor vehicle fuel or fuel additive that is all the following:

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

(4156) "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.®~~

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

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

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

(A) "Production" means the transportation fuel was produced inside California;
(B) "Import" means the transportation fuel was produced outside California and imported into California;
(C) "Purchased with Obligation" means the transportation fuel was purchased with the compliance obligation from a regulated party;
(D) "Purchased without Obligation" means the transportation fuel was purchased without the compliance obligation from a regulated party;
(E) "Sold with Obligation" means the transportation fuel was sold with the compliance obligation by a regulated party;
(F) "Sold without Obligation" means the transportation fuel was sold without the compliance obligation by a regulated party;

(G) "Export" means the transportation fuel was exported outside of California after temporarily being in California;

(H) "Loss of Inventory" means the fuel entered the California fuel pool but was not used in a motor vehicle due to spillage; and

(I) "Not Used for Transportation" means the fuel did not meet the definition for "transportation fuel."

(4260) "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 (formerly American Society for Testing and Materials).

(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 ~~c~~Code of ~~f~~Federal ~~r~~Regulations.

(7) "CI" means carbon intensity.

(8) "CNG" means compressed natural gas.

(9) "EER" means energy economy ratio.

(10) "EV" means electric vehicle.

(~~10~~11) "FCV" means fuel cell vehicles.

(~~11~~12) "FFV" means flex fuel vehicles.

(~~12~~13) "gCO2E/MJ" means grams of carbon dioxide equivalent per mega joule.

(~~13~~14) "GREET" means the Greenhouse gases, Regulated Emissions, and Energy use in Transportation model.

(~~14~~15) "GVWR" means gross vehicle weight rating.

(~~15~~16) "HDV" means heavy-duty vehicles.

(17) "HEV" means hybrid electric vehicle.

(~~16~~18) "ICEV" means internal combustion engine vehicle.

(~~17~~19) "LCFS" means Low Carbon Fuel Standard.

(~~18~~20) "LDV" means light-duty vehicles.

(~~19~~21) "LNG" means liquefied natural gas.

(~~20~~22) "LPG" means liquefied petroleum gas.

(23) "LRT" means LCFS reporting tool.

(24) "MCON" means marketable crude oil name.

(~~21~~25) "MDV" means medium-duty vehicles.

(~~22~~26) "MT" means metric tons of carbon dioxide equivalent.

(~~23~~27) "PHEV" means plug-in hybrid vehicles.

(28) "TEOR" means thermally enhanced oil recovery.

(~~24~~29) "ULSD" means California ultra low sulfur diesel.

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

§ 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(b~~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 (gCO2E/MJ)*	~~*% Reduction*~~
2010	Reporting Only	
2011	95.61	~~0.25%~~
2012	95.37	~~0.5%~~
2013	97.96 ~~94.89~~	~~1.0%~~
2014	97.47 ~~94.41~~	~~1.5%~~
2015	96.48 ~~93.45~~	~~2.5%~~
2016	95.49 ~~92.50~~	~~3.5%~~
2017	94.00 ~~91.06~~	~~5.0%~~
2018	92.52 ~~89.62~~	~~6.5%~~
2019	91.03 ~~88.18~~	~~8.0%~~
2020 and subsequent years	89.06 ~~86.27~~	~~10.0%~~

* The average carbon intensity requirements for years 2011 and 2012 reflect reductions from base year (2010) CI values for CaRFG calculated using the CI for crude oil supplied to California refineries in 2006. The average carbon intensity requirements for years 2013 to 2020 reflect reductions from revised base year (2010) CI values for CaRFG calculated using the CI for crude oil supplied to California refineries in 2010.

(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 (gCO2E/MJ)*	*~~% Reduction~~*
2010	Reporting Only	
2011	94.47	~~0.25%~~
2012	94.24	~~0.5%~~
2013	97.05 ~~93.76~~	~~1.0%~~
2014	96.56 ~~93.29~~	~~1.5%~~
2015	95.58 ~~92.34~~	~~2.5%~~
2016	94.60 ~~91.40~~	~~3.5%~~
2017	93.13 ~~89.97~~	~~5.0%~~
2018	91.66 ~~88.55~~	~~6.5%~~
2019	90.19 ~~87.13~~	~~8.0%~~
2020 and subsequent years	88.23 ~~85.24~~	~~10.0%~~

** The average carbon intensity requirements for years 2011 and 2012 reflect reductions from base year (2010) CI values for ULSD calculated using the CI for crude oil supplied to California refineries in 2006. The average carbon intensity requirements for years 2013 to 2020 reflect reductions from revised base year (2010) CI values for ULSD calculated using the CI for crude oil supplied to California refineries in 2010.

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

§ 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~~ 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 $\underline{Deficits^{XD}_{Incremental20XX}}$ ~~$Deficits^{XD}_{Incremental}$~~, as defined and set forth in section 95486(b)(2)(A)12.~~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 $Deficits^{XD}_{Base}$, as defined and set forth in section 95486(b)(2)(A)12.~~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~~ 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 $\underline{Deficits^{XD}_{Incremental20XX}}$ ~~$Deficits^{XD}_{Incremental}$~~, as defined and set forth in section 95486(b)(2)(A)1~~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 $Deficits^{XD}_{Base}$, as defined and set forth in section 95486(b)(2)(A)1~~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, CCR, 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~~ The transferor of CARBOB 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 $\underline{Deficits^{XD}_{Incremental20XX}}$ ~~$Deficits^{XD}_{Incremental}$~~, as defined and set forth in section 95486(b)(2)(A)1~~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, as defined and set forth in section 95486(b)(2)(A)1~~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~~ 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 $\underline{Deficits^{XD}_{Incremental20XX}}$ ~~$Deficits^{XD}_{Incremental}$~~, as defined and set forth in section 95486(b)(2)(A)1~~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 $Deficits^{XD}_{Base}$, as defined and set forth in section 95486(b)(2)(A)1~~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~~ 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 $\underline{Deficits^{XD}_{Incremental20XX}}$ ~~$Deficits^{XD}_{Incremental}$~~, as defined and set forth in section 95486(b)(2)(A)1~~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 $Deficits^{XD}_{Base}$, as defined and set forth in section 95486(b)(2)(A)1~~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 party who is eligible to opt-in as a regulated party is determined as specified below:

(A) For transportation fuel supplied through electric vehicle (EV) charging equipment in a single or multi-family residence, the Electrical Distribution Utility is eligible to opt-in as the regulated party in their service territory. To receive credit for electricity supplied as a transportation fuel, the Electrical Distribution Utility must:

1. Use all credit proceeds as direct benefits for current EV customers.

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

   a. public meetings
   b. EV dealership flyers
   c. utility customer bill inserts
   d. radio and/or television advertisements
   e. webpage content

3. Provide rate options that encourage off-peak charging and minimize adverse impacts to the electrical grid.

4. Include in annual compliance reporting an itemized summary of efforts to meet requirements 1 through 3 above; costs associated with meeting the requirements; an accounting of credits generated, sold, and banked; and an accounting of the number of EVs known to be operating in the service territory. ARB will post the annual compliance reports for public review by May 31st of each year.

(B) For transportation fuel supplied through public access EV charging equipment, the third-party non-utility Electric Vehicle Service Provider (EVSP) or Electrical Distribution Utility that has installed the equipment, or had an agent install the equipment, and who has a contract with the property owner or lessee where the equipment is located to maintain or otherwise service the charging equipment, is eligible to opt-in as the regulated party.

If the EVSP is not the regulated party for a specific volume of fuel, or has not fully complied with the requirements of this subarticle, the Electrical Distribution Utility is eligible to opt-in as the regulated party with Executive Officer approval. To receive credit for transportation fuel supplied through public access EV charging equipment, the regulated party must:

1. Use all credit proceeds as direct benefits for current EV customers.

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

   a. public meetings
   b. EV dealership flyers
   c. utility customer bill inserts
   d. radio and/or television advertisements
   e. webpage content

3. Provide rate options that encourage off-peak charging and minimize adverse impacts to the electrical grid.

4. Include in annual compliance reporting an itemized summary of efforts to meet requirements 1 through 3 above; costs associated with meeting the requirements; an accounting of credits generated, sold, and banked; and an accounting of the number of operating EV charging stations and the number of charging incidents. ARB will post the annual compliance reports for public review by May 31st of each year.

(C.1) For transportation fuel supplied to a fleet of three or more EVs, a person operating a fleet (fleet operator) is eligible to be a regulated party. If the fleet operator is not the regulated party for a specific volume of fuel, or has not otherwise fully complied with the requirements of this subarticle, the Electrical Distribution Utility is eligible to opt-in as the regulated party with Executive Officer approval. For transportation fuel supplied to a fleet of less than three EVs, the Electrical Distribution Utility is eligible to be the regulated party. To receive credit for transportation fuel supplied to an EV fleet, the regulated party must include in annual compliance reporting an accounting of the number of EVs in the fleet.

(C.2) For transportation fuel supplied to a fleet through the use of a battery switch station, the station owner is eligible to be a regulated party. If the station owner is not the regulated party for a specific amount of fuel, or has not otherwise fully complied with the requirements of this subarticle, the Electrical Distribution Utility is eligible to opt in as the regulated party with Executive Officer approval.

(D) For transportation fuel supplied through private access EV charging equipment at a business or workplace, the business owner is eligible to be a regulated party. If the business owner is not the regulated party for a specific volume of fuel, or has not fully complied with the requirements of this subarticle, the Electrical Distribution Utility is eligible to opt-in as the regulated party with Executive Officer approval. To receive credit for transportation fuel supplied through private access EV charging equipment at a business or workplace, the regulated party must:

1. Educate employees on the benefits of EV transportation (including environmental benefits and costs of EV charging as compared to gasoline) through outreach efforts that may include, but are not limited to:

a. employee meetings
b. public meetings
c. EV dealership flyers
d. employee flyers
e. webpage content
f. preferred parking

2. Include in annual compliance reporting a summary of efforts to meet requirement 1, as well as an accounting of the number of EVs known to be charging at the business.

(E) In the event that there is measured on-road electricity as a transportation fuel that is not covered in paragraphs (B) through (D) above, the Electrical Distribution Utility is eligible to opt-in as the regulated party with Executive Officer approval. To receive credit for this transportation fuel, the Electrical Distribution Utility must meet all requirements set forth in section 95484(a)(6)(A).

~~(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 and Annual Compliance Obligation.*~~

~~(1) *Compliance Period.* Beginning in 2011 and every year thereafter, the annual 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:~~

$$Credit\ Balance = Credits^{Gen} + Credits^{CarriedOver} + Credits^{Acquired} + Deficits^{Gen} - Credits^{Sold} - Credits^{Exported} - Credits^{Retired}$$

~~where:~~

~~$Credits^{Gen}$ is the total credits generated pursuant to section 954885(a) for the current compliance period;~~

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

~~$Credits^{Acquired}$ 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~~b~~) *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(b~~c~~)(3) and 95484(b~~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 ~~T~~to Report.* A regulated party must submit an annual compliance and quarterly progress report using the online LCFS Reporting Tool (LRT), an interactive, secured internet web-based system. The LRT is available at: www.arb.ca.gov/lcfsrt.~~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(b~~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, CCR, 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 containing the information identified in section 95484(a)(1)(B), (a)(1)(C), (a)(1)(D), (a)(2)(B), (a)(2)(C), (a)(4)(B), or (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, except as provided in section 95484(b)(4)(B), 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.~~

The marketable crude oil name (MCON) or other crude oil name designation, volume (in gal), and Country (or State) of origin for each crude supplied to the refinery during the quarter.

(B) *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(b~~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~~ either submetering or separate metering) 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 95484(b~~c~~)(3)(C)1.a.

   Effective January 1, 2015, "based on direct metering" means only the use of direct metering as specified in section 95484(b~~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~~ electricity dispensed (in kW-hr).

4. For each workplace private access charging facility, the amount of electricity dispensed (in kW-hr).

~~4.~~5. 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(be)(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.

(B) A producer of CARBOB, gasoline, or diesel fuel must report, for each of its refineries, the MCON or other crude oil name designation, volume (in gal), and Country (or State) of origin for each crude supplied to the refinery during the annual compliance period.

(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~~,~~ in units specified in section 95484(b)(3) and (b)(4), expressed to the nearest whole unit applicable for that quantity; ~~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(b~~e~~)(5)(A) to 95484(b~~e~~)(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.

Parameters to Report	*Gasoline & Diesel fuel*	*CNG & LNG*	*Electricity*	*Hydrogen ~~O~~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~~ Fuel pathway code	x	x	x	x	x
~~Blended fuel (yes/no)~~ Transaction type	x	x	x	x	x
~~If yes, number of blendstocks~~ Transaction date	x	x	~~n/a~~ x	x	x
~~Type(s) of blendstock~~ Business Partner	x	x	~~n/a~~ x	x	x
~~RIN numbers~~ Biofuel Production Facility	x	~~n/a~~ x	n/a	~~n/a~~ x	x
~~Blendstock feedstock~~ Physical pathway code	x	x	~~n/a~~ x	x	x
~~Feedstock origin~~ Aggregation	x	x	~~n/a~~	x	x
~~Production process~~ Application / EER	x	x	~~x~~*	x	x
Volume ~~Amount~~ of each blendstock (~~MJ~~Gal)	x	~~X~~ n/a	n/a	~~X~~ n/a	~~X~~ n/a
~~**The CI of the fuel or blendstock (CI^{XD} reported)~~ MCON or other crude oil name designation, volume (in gal), and country (or state) of origin for each crude supplied to the refinery	~~x~~ x	~~x~~ n/a	~~x~~ n/a	~~x~~ n/a	~~x~~ n/a
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~~c) *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(c~~d~~)(2). For purposes of this provision, "demonstrated" and "demonstration" includes any combination of either (i) a showing by the regulated party using its own documentation; or (ii) a showing by the regulated party that incorporates by reference documentation voluntarily submitted by another regulated party or a non-regulated party fuel producer, 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:

(A) *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 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.

(B) *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(c~~d~~)(2)(A). 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.

(C) *Initial Demonstration of Fuel Removed From the Physical Pathway.* For each specific volume of blendstock or alternative fuel identified in section 95484(c~~d~~)(2)(B), 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.

(D) *Subsequent Demonstration of Physical Pathway.* Once the Executive Officer has approved the initial demonstrations specified in section 95484(c~~d~~)(2)(A) through (C), 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(c~~d~~)(2)(A) through (C).

"Material change" means any change to the initially submitted information 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, the regulated party must notify the Executive Officer in writing within 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. 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(c~~d~~)(2)(A) through (C), which includes the material change(s) to the physical pathway.

(E) *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(c~~d~~)(2)(A) through (C). 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 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(c~~d~~)(2)(A) through (C). 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 that has obtained Executive Officer approval of its physical pathway demonstration; the transportation fuels and blendstocks covered by such Executive Officer approval; and details of the approved physical pathways disclosed in accordance with title 17, CCR, §§ 91000 – 91022 and the California Public Records Act (Government Code section 6250 et seq.).

(e~~d~~) *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 (title 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 § 42400) of Chapter 4 of Part 4 of, and Chapter 1.5 (commencing with § 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 § 42400) of Chapter 4 of Part 4 of, and Chapter 1.5 (commencing with § 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 and 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 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.3d 411, 121 Cal.Rptr. 249 (1975).

§ 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 95488(a) ~~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 density[1]:

[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.

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)
~~Anhydrous~~ Denatured Ethanol (gal)	81.51 ~~80.53~~ (MJ/gal)
Neat Biomass-based diesel (gal)	126.13 (MJ/gal)

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

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");

$CI_{s\tan dard}^{XD}$ 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 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 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:

$$C = 1.0x10^{-6} \frac{(MT)}{(gCO_2E)}$$

(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 (Spark-Ignition Engines) CNG or LNG (Compression-Ignition Engines)	0.9 1.0
Electricity / BEV, or PHEV	~~3.0~~ 3.4	Electricity / BEV, or PHEV*	2.7
H2 / FCV	~~2.3~~ 2.5	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 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, 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 and 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 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.3d 411, 121 Cal.Rptr. 249 (1975).

§ 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~~ of 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). A regulated party may use Method 1 to determine the carbon intensity of each fuel he or she sells in California if the Carbon Intensity Lookup Table contains fuel pathways that closely correspond to the regulated party's fuel pathways. A regulated party's pathway corresponds closely with a Lookup Table pathway when it is consistent with Lookup Table pathway in all the following areas:

(A) Feedstocks used to produce the fuel.

(B) Fuel and feedstock production technology.

(C) Geographic regions in which feedstocks and finished fuel are produced.

(D) The modes used to transport feedstocks and finished fuel and the transport distances involved.

(E) The types and amounts of thermal and electrical energy consumed in both feedstock and finished fuel production. This applies both to the energy consumed in the production process, but also to the upstream energy consumed (e.g., fuels used to generate electricity; energy consumed to produce natural gas, etc.).

(F) The CI of the regulated party's product must be lower than or equal to the Lookup Table pathway CI. If the Executive Officer determines that the regulated party's product has an actual CI that is likely to be higher than the Lookup Table pathway CI, the regulated party shall prepare a Method 2B application for a pathway-specific CI.

(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.

(A) 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.

(B) If the Executive Officer has reason to believe that the Carbon Intensity Lookup Table does not contain a fuel pathway that closely corresponds with the regulated party's fuel pathway, as specified in 95486(a)(2), the regulated party will not be allowed to use Method 1, and the Executive Officer may permit the regulated party to use a carbon intensity value pursuant to subsection (5) below for determining the regulated party's fuel carbon intensity.

(C) 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.

(4) A regulated party who has purchased ethanol or biomass-based diesel but is unable to determine the carbon intensity of that fuel may petition the Executive Officer to use a default carbon intensity value. The Executive Officer may grant a regulated party permission to use a default value only if the regulated party demonstrates that the use of Methods 1 and 2 are not available for the volume of fuel and that the fuel cannot be sold outside of California. The term "unable to be determined" is defined, for purposes of this provision, as follows:

(A) The production facility cannot be identified, or

(B) The production facility is known, but no carbon intensity value for the production facility is posted pursuant to section 95486(f)(2)(B), and the production facility has not received a pathway carbon intensity through the Method 2A or 2B process.

(5) Pursuant to Paragraph (4) above, the Executive Officer may grant regulated parties permission to use the following carbon intensities for ethanol and biomass-based diesel, respectively:

(A) For ethanol, the Midwest Average ethanol carbon intensity of 99.40 gCO_2e/MJ from Table 6 in section 95486(b), and

(B) For biomass-based diesel, the ULSD carbon intensity value from Table 7 in section 95486(b).

(b) *Method 1 – ARB Lookup Table.*

(1) To generate carbon intensity values, the Executive Officer ~~*ARB*~~ uses the California-modified GREET (CA-GREET) model (version 1.8b, (February 2009, updated December 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 website at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm. CA-GREET, or other model determined by the Executive Officer to be at least equivalent to the CAGREET, version 1.8b., shall be used by the Executive Officer to generate carbon intensity values.

To generate carbon intensity values for crude oil production and transport to California refineries, the Executive Officer uses the Oil Production Greenhouse Gas Emissions Estimator (OPGEE) model version 1.0 (September 2012), which is incorporated herein by reference. The OPGEE model is available for downloading on ARB's website at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm. OPGEE, or other model determined by the Executive Officer to be at least equivalent to the OPGEE, version 1.0., shall be used by the Executive Officer to generate carbon intensity values for crude oil production and transport to California refineries.

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," Pathway CBOB001;

(A.1) Supplement Version 2.0 (September 12, 2012) to Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed CaliforniaModified 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)" ~~Pathways ETHC001, ETHC002, ETHC003, ETHC004, ETHC005, ETHC006, ETHC007, ETHC008, ETHC009, ETHC010, ETHC0011, ETHC0012, ETHC0013~~;

(B.1) Supplement Version 2.0 (September 12, 2012) to 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," Pathway ULSD001;

(C.1) Supplement Version 2.0 (September 12, 2012) to 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," Pathways ETHC001, ETHC002, ETHC003, ETHC004, ETHC005, ETHC006, ETHC007, ETHC008, ETHC009, ETHC0010, ETHC0011, ETHC0012, ETHC013;

(E) ~~Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for Brazilian Sugarcane Ethanol," Pathways ETHS001, ETHS002, ETHS003~~ [reserved for future use];

(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," Pathways CNG001, CNG002;

(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," Pathway CNG003;

(H) Stationary Source Division, Air Resources Board (February 27, 2009, v.2.1), "Detailed California-Modified GREET Pathway for California Average and Marginal Electricity," Pathways ELC001, ELC002;

(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," Pathways HYG001, HYG002, HYG003, HYG004, HYG005;

(J) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.0), "Detailed California-Modified GREET Pathways for Liquefied Natural Gas (LNG) from North American and Remote Natural Gas Sources," Pathways LNG001, LNG002, LNG003, LNG 004, LNG005;

(K) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.0), "Detailed California-Modified GREET Pathway for Liquefied Natural Gas (LNG) from Landfill Gas (LFG)," Pathways LNG006, LNG007;

(L) Stationary Source Division, Air Resources Board (July 20, 2009, v.1.0), "Detailed California-Modified GREET Pathway for Compressed Natural Gas (CNG) from Dairy Digester Biogas," Pathway CNG004;

(M) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.0), "Detailed California-Modified GREET Pathway for Liquefied Natural Gas (LNG) from Dairy Digester Biogas," Pathways LNG008, LNG009;

(N) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.0), "Detailed California-Modified GREET Pathway for Biodiesel from Used Cooking Oil," Pathways BIOD002, BIOD003;

(O) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.0), "Detailed California-Modified GREET Pathway for CoProcessed Renewable Diesel from Tallow (U.S. Sourced)," Pathways RNWD002, RNWD003;

(P) Stationary Source Division, Air Resources Board (September 23, 2009, v.2.3), "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," Pathways ETHS001, ETHS002, ETHS003;

(Q) Stationary Source Division, Air Resources Board (December 14, 2009, v.3.0), "Detailed California-Modified GREET Pathway for Biodiesel from Midwest Soybeans," Pathway BIOD001;

(R) Stationary Source Division, Air Resources Board (December 14, 2009, v.3.0), "Detailed California-Modified GREET Pathway for Renewable Diesel from Midwest Soybeans," Pathway RNWD001;

(S) Archer Daniels Midland Company Method B Application Package (May 18, 2011), http://www.arb.ca.gov/fuels/lcfs/2a2b/apps/adm-15day-070811.pdf, Pathways ETHC014, ETHC015, ETHC016, ETHC017, ETHC018, ETHC019, ETHC020, ETHC021;

(T) POET Method 2A Application Package (February 20, 2011) http://www.arb.ca.gov/fuels/lcfs/2a2b/apps/poet-15day-070811.pdf, Pathways ETCH025, ETCH026, ETCH027, ETCH028, ETCH029, ETCH030, ETCH031, ETCH032, ETCH033, ETCH034, ETCH035;

(U) Trinidad Bulk Traders LTD Method 2B Application Package (November 23, 2010), http://www.arb.ca.gov/fuels/lcfs/2a2b/apps/tbtl-rpt-ncbi-121410.pdf, Pathways ETHS004, ETHS005, ETHS006;

(V) Green Plains Holdings II LLC—Lakota Plant Division Method 2A Application Package, (November 3, 2010), http://www.arb.ca.gov/fuels/lcfs/2a2b/apps/gp-lak-sum-ncbi-121410.pdf, Pathway ETHC024;

(W) Green Plains Central City LLC, Method 2A Application Package (October 20, 2010), http://www.arb.ca.gov/fuels/lcfs/2a2b/apps/gp-cct-rpt-ncbi-121410.pdf, Pathway ETHC023;

(X) Louis Dreyfus Commodities, Elkhorn Valley Ethanol LLC Method 2A Application Package (December 1, 2010), http://www.arb.ca.gov/fuels/lcfs/2a2b/apps/ld-nor-rpt-ncbi-121410.pdf, Pathway ETHC022;

(Y) Stationary Source Division, Air Resources Board (June 30, 2011, v. 2.0), http://www.arb.ca.gov/fuels/lcfs/2a2b/internal/mw-uco-bd-070811.pdf, "Detailed California-Modified GREET Pathway for Biodiesel Produced in the Midwest from Used Cooking Oil and Used in California," Pathways BIOD004, BIOD005; and

(Z) Stationary Source Division, Air Resources Board (November 3, 2011, Version 2.0) "California-Modified GREET Pathway for the Production of Biodiesel from Corn Oil at Dry Mill Ethanol Plants," Pathway BIOD007;

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

Fuel	*Pathway Identifier*	*Pathway Description*	*Carbon Intensity Values (gCO2e/MJ)*		
			Direct Emissions	*Land Use or Other Indirect Effect*	*Total*
CARBOB ~~Gasoline~~	CBOB001	CARBOB - based on the average crude oil supplied~~delivered~~ to California refineries and average California refinery efficiencies	99.18 ~~95.86~~	0	99.18 ~~95.86~~
Ethanol from Corn	ETHC001	Midwest average; 80% Dry Mill; 20% Wet Mill; Dry DGS; NG	69.40	30	99.40
	ETHC002	California average; 80% Midwest Average; 20% California; Dry Mill; Wet DGS; NG	65.66	30	95.66
	ETHC003	California; Dry Mill; Wet DGS; NG	50.70	30	80.70

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO2e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
	ETHC004	Midwest; Dry Mill; Dry DGS, NG	68.40	30	98.40
	ETHC005	Midwest; Wet Mill, 60% NG, 40% coal	75.10	30	105.10
	ETHC006	Midwest; Wet Mill, 100% NG	64.52	30	94.52
	ETHC007	Midwest; Wet Mill, 100% coal	90.99	30	120.99
	ETHC008	Midwest; Dry Mill; Wet, DGS; NG	60.10	30	90.10
	ETHC009	California; Dry Mill; Dry DGS, NG	58.90	30	88.90
	ETHC010	Midwest; Dry Mill; Dry DGS; 80% NG; 20% Biomass	63.60	30	93.60
	ETHC011	Midwest; Dry Mill; Wet DGS; 80% NG; 20% Biomass	56.80	30	86.80
	ETHC012	California; Dry Mill; Dry DGS; 80% NG; 20% Biomass	54.20	30	84.20
	ETHC013	California; Dry Mill; Wet DGS; 80% NG; 20% Biomass	47.44	30	77.44
	ETHC014	2B Application*: Midwest; Dry Mill; Plant energy use not to exceed a value the applicant classifies as confidential; No grid electricity use; Coal use not to exceed 71% of fuel use (by energy); Coal carbon content not to exceed 48%	60.99	30	90.99
	ETHC015	2B Application*: Midwest; Dry Mill; Plant energy use not to exceed a value the applicant classifies as confidential; No grid electricity use; Biomass must be at least 5% of the fuel use (by energy); Coal use not to exceed 66% of fuel use (by energy); Coal carbon content not to exceed 48%	59.08	30	89.08

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO2e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
	ETHC016	2B Application*: Midwest; Dry Mill; Plant energy use not to exceed a value the applicant classifies as confidential; No grid electricity use; Biomass must be at least 10% of the fuel use (by energy); Coal use not to exceed 60% of fuel use (by energy); Coal carbon content not to exceed 48%	57.16	30	87.16
	ETHC017	2B Application*: Midwest; Dry Mill; Plant energy use not to exceed a value the applicant classifies as confidential; No grid electricity use; Biomass must be at least 15% of the fuel use (by energy); Coal use not to exceed 54% of fuel use (by energy); Coal carbon content not to exceed 48%	55.24	30	85.24
	ETHC018	2B Application*: Midwest; Dry Mill; Plant energy use not to exceed a value the applicant classifies as confidential; No grid electricity use; Coal use not to exceed 71% of fuel use (by energy); Coal carbon content not to exceed 48%	59.80	30	89.80
	ETHC019	2B Application*: Midwest; Dry Mill; Plant energy use not to exceed a value the applicant classifies as confidential; No grid electricity use; Biomass must be at least 5% of the fuel use (by energy); Coal use not to exceed 65% of fuel use (by energy); Coal carbon content not to exceed 48%	57.86	30	87.86
	ETHC020	2B Application*: Midwest; Dry Mill; Plant energy use not to exceed a value the applicant classifies as confidential; No grid electricity use; Biomass must be at least 10% of the fuel use (by energy); Coal use not to exceed 59% of fuel use (by energy); Coal carbon content not to exceed 48%.	55.91	30	85.91
	ETHC021	2B Application*: Midwest; Dry Mill; Plant energy use not to exceed a value the applicant classifies as confidential; No grid electricity use; Biomass must be at least 15% of the fuel use (by energy); Coal use not to exceed 53% of fuel use (by energy); Coal carbon content not to exceed 48%	53.96	30	83.96

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO2e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
	ETHC022	2A Application*: Midwest; Dry Mill; 15% Dry DGS, 85% Partially Dry DGS; NG; Plant energy use not to exceed a value the applicant classifies as confidential	57.16	30	87.16
	ETHC023	2A Application*: Midwest; Dry Mill; Partially Dry DGS; NG; Plant energy use not to exceed a value the applicant classifies as confidential	54.29	30	84.29
	ETHC024	2A Application*: Midwest; Dry Mill; 75% Dry DGS, 25% Wet DGS; NG; Plant energy use not to exceed a value the applicant classifies as confidential	61.60	30	91.60
	ETHC025	2A Application*: Dry Mill; Dry DGS; Raw starch hydrolysis; Amount and type of fuel use, and amount of grid electricity use not to exceed a value the applicant classifies as confidential	62.44	30	92.44
	ETHC026	2A Application*: Dry Mill; Dry DGS; Raw starch hydrolysis/ combined heat and power; Amount and type of fuel use, and amount of grid electricity use not to exceed a value the applicant classifies as confidential	58.49	30	88.49
	ETHC027	2A Application*: Dry Mill; Dry DGS; Raw starch hydrolysis/biomass & landfill gas fuels; Amount and type of fuel use, and amount of grid electricity use not to exceed a value the applicant classifies as confidential	58.50	30	88.50
	ETHC028	2A Application*: Dry Mill; Dry DGS; Raw starch hydrolysis/corn fractionation; Amount and type of fuel use, and amount of grid electricity use not to exceed a value the applicant classifies as confidential	61.66	30	91.66
	ETHC029	2A Application*: Dry Mill; Dry DGS; Conventional cook/combined heat and power; Amount and type of fuel use, and amount of grid electricity use not to exceed a value the applicant classifies as confidential	60.52	30	90.52

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO2e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
	ETHC030	2A Application*: Dry Mill; Dry DGS; Raw starch hydrolysis/biogas process fuel; Amount and type of fuel use, and amount of grid electricity use not to exceed a value the applicant classifies as confidential	44.70	30	74.70
	ETHC031	2A Application*: Dry Mill; Wet DGS; Raw starch hydrolysis; Amount and type of fuel use, and amount of grid electricity use not to exceed a value the applicant classifies as confidential	53.69	30	83.69
	ETHC032	2A Application*: Dry Mill; Wet DGS; Raw starch hydrolysis/ combined heat and power; Amount and type of fuel use, and amount of grid electricity use not to exceed a value the applicant classifies as confidential	50.01	30	80.01
	ETHC033	2A Application*: Dry Mill; Wet DGS; Raw starch hydrolysis/corn fractionation; Amount and type of fuel use, and amount of grid electricity use not to exceed a value the applicant classifies as confidential	50.26	30	80.26
	ETHC034	2A Application*: Dry Mill; Wet DGS; Conventional cook/combined heat and power; Amount and type of fuel use, and amount of grid electricity use not to exceed a value the applicant classifies as confidential	50.47	30	80.47
	ETHC035	2A Application*: Dry Mill; Wet DGS; Raw starch hydrolysis/biogas process fuel; Amount and type of fuel use, and amount of grid electricity use not to exceed a value the applicant classifies as confidential	43.21	30	73.21
Ethanol from Sugarcane	ETHS001	Brazilian sugarcane using average production processes	27.40	46	73.40
	ETHS002	Brazilian sugarcane with average production process, mechanized harvesting and electricity co-product credit	12.40	46	58.40

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO2e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
	ETHS003	Brazilian sugarcane with average production process and electricity co-product credit	20.40	46	66.40
	ETHS004	2B Application*: Brazilian sugarcane processed in the CBI with average production process; Thermal process power supplied with NG	32.94	46	78.94
	ETHS005	2B Application*: Brazilian sugarcane processed in the CBI with average production process, mechanized harvesting and electricity co-product credit; Thermal process power supplied with NG	17.94	46	63.94
	ETHS006	2B Application*: Brazilian sugarcane processed in the CBI with average production process and electricity co-product credit; Thermal process power supplied with NG	25.94	46	71.94
Compressed Natural Gas	CNG001	California NG via pipeline; compressed in CA	67.70	0	67.70
	CNG002	North American NG delivered via pipeline; compressed in CA	68.00	0	68.00
	CNG003	Landfill gas (bio-methane) cleaned up to pipeline quality NG; compressed in CA	11.26	0	11.26
	CNG004	Dairy Digester Biogas to CNG	13.45	0	13.45
Liquefied Natural Gas	LNG001	North American NG delivered via pipeline; liquefied in CA using liquefaction with 80% efficiency	83.13	0	83.13
	LNG002	North American NG delivered via pipeline; liquefied in CA using liquefaction with 90% efficiency	72.38	0	72.38
	LNG003	Overseas-sourced LNG delivered as LNG to Baja; re-gasified then re-liquefied in CA using liquefaction with 80% efficiency	93.37	0	93.37
	LNG004	Overseas-sourced LNG delivered as LNG to CA; re-gasified then re-liquefied in CA using liquefaction with 90% efficiency	82.62	0	82.62

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO2e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
	LNG005	Overseas-sourced LNG delivered as LNG to CA; no re-gasification or re-liquefaction in CA	77.50	0	77.50
	LNG006	Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 80% efficiency	26.31	0	26.31
	LNG007	Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 90% efficiency	15.56	0	15.56
	LNG008	Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 80% efficiency	28.53	0	28.53
	LNG009	Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 90% efficiency	17.78	0	17.78
Electricity	ELC001	California average electricity mix	124.10	0	124.10
	ELC002	California marginal electricity mix of natural gas and renewable energy sources	104.71	0	104.71
Hydrogen	HYGN001	Compressed H2 from central reforming of NG (includes liquefaction and re-gasification steps)	142.20	0	142.20
	HYGN002	Liquid H2 from central reforming of NG	133.00	0	133.00
	HYGN003	Compressed H2 from central reforming of NG (no liquefaction and re-gasification steps)	98.80	0	98.80
	HYGN004	Compressed H2 from on-site reforming of NG	98.30	0	98.30
	HYGN005	Compressed H2 from on-site reforming with renewable feedstocks	76.10	0	76.10

* Specific conditions apply.

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

Fuel	*Pathway Identifier*	*Pathway Description*	*Carbon Intensity Values (gCO2e/MJ)*		
			Direct Emissions	*Land Use or Other Indirect Effect*	*Total*
Diesel	ULSD001	ULSD - based on the average crude oil supplied~~delivered~~ to California refineries and average California refinery efficiencies	98.03 ~~94.71~~	0	98.03 ~~94.71~~
Biodiesel	BIOD002	Conversion of waste oils (Used Cooking Oil) to biodiesel (fatty acid methyl esters - FAME) where "cooking" is required	15.84	0	15.84
	BIOD003	Conversion of waste oils (Used Cooking Oil) to biodiesel (fatty acid methyl esters - FAME) where "cooking" is not required	11.76	0	11.76
	BIOD001	Conversion of Midwest soybeans to biodiesel (fatty acid methyl esters -FAME)	21.25	62	83.25
	BIOD004	Conversion of waste oils (Used Cooking Oil) to biodiesel (fatty acid methyl esters - FAME) where "cooking" is required. Fuel produced in the Midwest	18.72	0	18.72
	BIOD005	Conversion of waste oils (Used Cooking Oil) to biodiesel (fatty acid methyl esters - FAME) where "cooking" is not required. Fuel produced in the Midwest	13.83	0	13.83
	BIOD007	Conversion of corn oil, extracted from distillers grains prior to the drying process, to biodiesel	4.00	0	4.00
Renewable Diesel	RNWD002	Conversion of tallow to renewable diesel using higher energy use for rendering	39.33	0	39.33
	RNWD003	Conversion of tallow to renewable diesel using lower energy use for rendering	19.65	0	19.65
	RNWD001	Conversion of Midwest soybeans to renewable diesel	20.16	62	82.16
Compressed Natural Gas	CNG001	California NG via pipeline; compressed in CA	67.70	0	67.70
	CNG002	North American NG delivered via pipeline; compressed in CA	68.00	0	68.00
	CNG003	Landfill gas (bio-methane) cleaned up to pipeline quality NG; compressed in CA	11.26	0	11.26

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO2e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
	CNG004	Dairy Digester Biogas to CNG	13.45	0	13.45
Liquefied Natural Gas	LNG001	North American NG delivered via pipeline; liquefied in CA using liquefaction with 80% efficiency	83.13	0	83.13
	LNG002	North American NG delivered via pipeline; liquefied in CA using liquefaction with 90% efficiency	72.38	0	72.38
	LNG003	Overseas-sourced LNG delivered as LNG to Baja; re-gasified then re-liquefied in CA using liquefaction with 80% efficiency	93.37	0	93.37
	LNG004	Overseas-sourced LNG delivered as LNG to CA; re-gasified then re-liquefied in CA using liquefaction with 90% efficiency	82.62	0	82.62
	LNG005	Overseas-sourced LNG delivered as LNG to CA; no re-gasification or re-liquefaction in CA	77.50	0	77.50
	LNG006	Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 80% efficiency	26.31	0	26.31
	LNG007	Landfill Gas (bio-methane) to LNG liquefied in CA using liquefaction with 90% efficiency	15.56	0	15.56
	LNG008	Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 80% efficiency	28.53	0	28.53
	LNG009	Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 90% efficiency	17.78	0	17.78
Electricity	ELC001	California average electricity mix	124.10	0	124.10
	ELC002	California marginal electricity mix of natural gas and renewable energy sources	104.71	0	104. 71
Hydrogen	HYGN001	Compressed H2 from central reforming of NG (includes liquefaction and re-gasification steps)	142.20	0	142.20
	HYGN002	Liquid H2 from central reforming of NG	133.00	0	133.00

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO2e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
	HYGN003	Compressed H2 from central reforming of NG (no liquefaction and re-gasification steps)	98.80	0	98.80
	HYGN004	Compressed H2 from on-site reforming of NG	98.30	0	98.30
	HYGN005	Compressed H2 from on-site reforming with renewable feedstocks	76.10	0	76.10

Table 8. Carbon Intensity Lookup Table for Crude Oil Production and Transport

Country of Origin	Crude Identifier	Carbon Intensity Values (gCO2e/MJ)
	Baseline Crude Average*	11.39
	Annual Crude Average**	See 95486(b)(2)(A)1.
Angola	Dalia	7.86
	Girassol	10.43
	Greater Plutonio	8.82
Argentina	Canadon Seco	7.54
	Escalante	7.51
	Hydra	8.03
Australia	Pyrenees	5.96
Brazil	Albacora Leste	7.35
	Frade	6.62
	Marlim	6.75
	Marlim Sul	9.69
	Ostra	5.71

	Polvo	5.62
Cameroon	Lokele	24.02
Canada	Albian Heavy Synthetic	21.02
	Cold Lake	18.74
	Federated	7.77
	Koch Alberta	7.61
	Mixed Sweet Blend	7.75
	Suncor Synthetic A	24.49
	Suncor Synthetic C	24.49
	Syncrude Sweet Premium	21.87
Colombia	Castilla Blend	6.45
	Vasconia	6.63
Ecuador	Napo	7.45
	Oriente	9.34
Iraq	Basra Light	12.08
Kuwait/Saudi Arabia Partitioned Zone	Eocene	5.59
	Ratawi	5.77
Nigeria	Bonny Light	17.88
Oman	Oman	12.30
Peru	Loreto	5.82
	Mayna	7.14
Russia	ESPO	12.09
Saudi Arabia	Arab Extra Light	6.86
	Arab Light	6.75

Trinidad and Tobago	Calypso	6.95
United States	Alaska North Slope	12.81
	California Average Production	12.90
Venezuela	Boscan	12.53
	Petrozuata	23.58
	Zuata Sweet	23.50

* Based on production and transport of the crude oil supplied to California refineries during the baseline calendar year, 2010
**Based on production and transport of the crude oil supplied to California refineries during a specified calendar year or years. The Annual Crude Average CI value will be first calculated for calendar year 2012 and subsequently updated annually using data for crude oil supplied to California refineries during the specified calendar year or years.

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

(A) *For CARBOB and Diesel Fuel.*

Deficit calculations to be used for a regulated party's CARBOB or diesel fuel are specified in section 95486(b)(2)(A)1. Requirements for adding incremental emission increases associated with an increase in the carbon intensity of crude oil to a regulated party's compliance obligation are specified in section 95486(b)(2)(A)2. The credit calculation for CARBOB or diesel derived from petroleum feedstock which is produced using innovative methods such as carbon capture and sequestration (CCS) is specified in section 95486(b)(2)(A)4.

1. *Deficit Calculation for CARBOB or Diesel Fuel.*

A regulated party for CARBOB or diesel fuel must calculate separately the base deficit and incremental deficit for each fuel or blendstock derived from petroleum feedstock as specified in this provision.

Base Deficit Calculation

$$Deficits^{XD}_{Base}\ (MT) = (CI^{XD}_{Standard} - CI^{XD}_{BaselineAvg}) \times E^{XD} \times C$$

Incremental Deficit Calculation to Mitigate Increases in the Carbon-Intensity of Crude Oil

$$If\ CI^{XD}_{20XXCrudeAvg} > CI^{XD}_{BaselineCrudeAvg}\ then:$$

$$Deficits^{XD}_{Incremental\ 20XX} =$$

$$(CI^{XD}_{BaselineCrudeAvg} - CI^{XD}_{20XXCrudeAvg}) \times E^{XD} \times C$$

If $CI^{XD}_{20XXCrudeAvg} \leq CI^{XD}_{BaselineCrudeAvg}$ *then:*

$$Deficits^{XD}_{Incremental\ 20XX} = 0$$

where,

$Deficits^{XD}_{Base}$ *(MT) and* $Deficits^{XD}_{Incremental20XX}$ mean the amount of LCFS deficits incurred (a negative value), in metric tons, by the volume of CARBOB and diesel that is derived from petroleum feedstock and is either produced in or imported into California during a specific calendar year;

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

$CI^{XD}_{BaselineAvg}$ is the average carbon-intensity value of CARBOB or diesel, in gCO2E/MJ, that is derived from petroleum feedstock and is either produced in or imported into California during the baseline calendar year, 2010. For purposes of this provision, $CI^{XD}_{BaselineAvg}$ for CARBOB (XD = "CARBOB") and diesel fuel (XD = "diesel") are the Baseline Average carbon intensity values for CARBOB and diesel (ULSD) set forth in the Carbon Intensity Lookup Table. The Baseline Average carbon intensity values for CARBOB and diesel (ULSD) are calculated using data for crude oil supplied to California refineries during the baseline calendar year, 2010.

$CI^{XD}_{BaselineCrudeAvg}$ is the California average crude oil carbon-intensity value, in gCO2E/MJ, attributed to the production and transport of the crude oil supplied as petroleum feedstock to California refineries during the baseline calendar year, 2010. For purposes of this provision, $CI^{XD}_{BaselineCrudeAvg}$ for CARBOB (XD = "CARBOB") and diesel fuel (XD = "diesel") is the Baseline Crude Average carbon intensity value set forth in the Lookup Table. The Baseline Crude Average carbon intensity value is calculated using data for crude oil supplied to California refineries during the baseline calendar year, 2010.

$CI^{XD}_{20XXCrudeAvg}$ is the California average crude oil carbon-intensity value, in gCO2E/MJ, attributed to the production and transport of the crude oil supplied as petroleum feedstock to California refineries during specified calendar years. For purposes of this

provision, $CI^{XD}_{20XXCrudeAvg}$ for CARBOB (XD = "CARBOB") and diesel fuel (XD = "diesel") is the Annual Crude Average carbon intensity value set forth in the Lookup Table. $CI^{XD}_{20XXCrudeAvg}$ will be updated annually. $CI^{XD}_{2012CrudeAvg}$ will be calculated using data for crude oil supplied to California refineries during the calendar year 2012. $CI^{XD}_{2013CrudeAvg}$ will be calculated using data for crude oil supplied to California refineries during the calendar years 2012 and 2013. $CI^{XD}_{2014CrudeAvg}$ will be calculated using data for crude oil supplied to California refineries during the calendar years 2012, 2013, and 2014. All subsequent updates to $CI^{XD}_{20XXCrudeAvg}$ will be calculated using data for crude oil supplied to California refineries during the most recent three calendar years.

E^{XD} is the amount of fuel energy, in MJ, from CARBOB (XD = "CARBOB") or diesel (XD = "diesel"), determined from the energy density conversion factors in Table 4, either produced in California or imported into California during a specific calendar year.

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

2. *Addition of Incremental Deficits that Result from Increases in the Carbon-Intensity of Crude Oil to a Regulated Party's Compliance Obligation.*

   a. Incremental deficits for CARBOB or diesel fuel that result from increases in the carbon-intensity of crude oil will be calculated and added to each affected regulated party's compliance obligation for the compliance period in which the $Deficits^{XD}_{Incremental20XX}$ become effective, which will be the year following the year in which the $CI^{XD}_{20XXCrudeAvg}$ was established and added to the Lookup Table.

   b. Incremental deficits for CARBOB or diesel fuel for each regulated party will be based upon the amount of CARBOB and Diesel fuel supplied by the regulated party in each compliance period for which the $Deficits^{XD}_{Incremental20XX}$ are effective.

3. Process for Calculating the Annual Crude Average Carbon Intensity Value.

a. The Annual Crude Average carbon intensity value will be calculated using a volume-weighted average of individual crude carbon intensity values. Volumes for individual crudes will be the total volumes reported by all regulated parties in the Annual Compliance Reports for the calendar year. Individual crude carbon intensity values are those listed in Table 8.

b. Within 15 days of receiving the Annual Compliance reports, the Executive Officer shall post the Annual Crude Average carbon intensity calculation at the ARB-LCFS website (http://www.arb.ca.gov/fuels/lcfs/lcfs.htm) for public comment. Written comments shall be accepted for 15 calendar days following the date on which the analysis was posted. Only comments related to potential factual or methodological errors in the posted Annual Crude Average carbon intensity value may be considered. The Executive Officer shall evaluate the comments received and, if the Executive Officer deems it necessary, may request in writing additional information or clarification from the commenters. Commenters shall have 10 days to respond to these requests. The Executive Officer shall post the final Annual Crude Average carbon intensity value at the ARB-LCFS website within 15 days of completion of the comment period, if no comments are received. If comments are received, the Executive Officer shall post the final Annual Crude Average carbon intensity value within 15 days of receiving any additional information or clarification requested from the commenters by the Executive Officer.

4. Credit for Purchasing Crudes Produced using Innovative Crude Production Methods.

A regulated party may receive credit for fuel or blendstock derived from petroleum feedstock which has been produced using innovative methods. For the purpose of this section, an innovative method means crude production using carbon capture and sequestration or solar steam generation that was implemented by the crude producer during or after the year 2010 and results in a reduction in carbon intensity for crude oil recovery (well to refinery entrance gate) of 1.00 gCO2E/MJ or greater. The crude oil producer must submit to ARB carbon intensity values for petroleum feedstock recovered both with and without implementation of the innovative method. Credits for CARBOB, gasoline, or diesel derived from this petroleum feedstock must be calculated as specified below:

$$Credits_{Innov}^{XD}(MT) = (CI_{Without}^{XD} - CI_{With}^{XD})_{Innov} \times E_{Innov}^{XD} \times C$$

where,

$Credits_{Innov}^{XD}(MT)$ mean the amount of LCFS credits generated (a positive value), in metric tons, by the volume of a fuel or blendstock produced in California and derived wholly from petroleum feedstock which uses the innovative production method;

CI_{With}^{XD} means the carbon intensity value, in gCO2E/MJ, of the petroleum feedstock produced with the innovative method;

$CI_{Without}^{XD}$ means the carbon intensity value, in gCO2E/MJ, of the petroleum feedstock produced using a similar process but without the innovative method (hereinafter referred to as the comparison baseline method);

E_{Innov}^{XD} is the amount of fuel energy, in MJ, from CARBOB (XD = "CARBOB") or diesel (XD = "diesel"), determined from the energy density conversion factors in Table 4, produced in California and derived wholly from petroleum feedstock produced with the innovative method;

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

a. General Requirements. The innovative crude oil production method must be approved for use pursuant to this section before a regulated party can receive credit under the LCFS regulation for producing fuels or blendstocks from the innovative crude. This regulatory approval must be initiated by the crude oil producer through a written application to the Executive Officer. The application must contain at least the following:

i. A description of the innovative method, the comparison baseline method, and how emissions are reduced;

ii. An engineering drawing(s) or process flow diagram(s) that illustrate the innovative method;

iii. Calculations using the OPGEE model, or alternative model approved by the Executive Officer, to estimate the carbon intensities for the production of the crude using the innovative method and the comparison baseline method. The calculations must identify all

modified parameters in the model and demonstrate that the inputs to the model accurately reflect the conditions specific to the crude production process;

iv. Any other technical documentation to support the applicant's claim that emissions will be reduced from the use of the innovative method.

b. Scientific Defensibility and Substantiality. For a proposed application for the use of innovative crude oil production methods to be approved, the applicant must demonstrate both that the innovative method is scientifically defensible and that it meets a substantiality requirement. These requirements are specified below:

i. Scientific Defensibility. A crude oil producer that seeks approval for an innovative crude oil production method bears the sole burden of demonstrating that the proposed innovative crude oil production method is scientifically defensible. Proof that a proposed innovative crude oil production method is scientifically defensible may rely on, but is not limited to, publication of the proposed innovative crude oil production method 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).

ii. Substantiality Requirement. For each of its crude oils for which a crude oil producer is seeking approval as an innovative crude oil production method, the applicant must demonstrate that the proposed innovative crude oil production method has a well-to-refinery gate carbon intensity that is at least 1.00 gram CO2-eq/MJ less than the well-to-refinery gate carbon intensity for the crude oil produced using the comparison baseline method. "Well-to-refinery gate" means all the steps involved in the extraction, production and transport of the crude oil to California, but it does not include the carbon intensity due to refining the crude oil, transporting the fuel, or the vehicle's use of the fuel.

c. Application and Data Submittal. A crude oil producer may apply to the Executive Officer for approval of an innovative crude oil production method under the LCFS. Unless otherwise noted, all applications for an innovative crude oil production method shall comply with the requirements below.

i. An applicant that submits any information or documentation in support of a proposed innovative crude oil production method must include a written statement clearly showing that the applicant understands and agrees to the following:

A. The applicant 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;

B. All information in the application not identified as trade secrets are subject to public disclosure pursuant to title 17, CCR, sections 91000-91022 and the California Public Records Act (Government Code sec. 6250 et seq.); and

C. If the application is approved, the carbon intensity values will be incorporated into the Crude Lookup Table and LCFS Reporting Tool

ii. All applications shall include a detailed description of the innovative method and its comparison baseline method. The description must include:

A. Schematic flow charts that identify the system boundaries used for the purposes of performing the life cycle analyses on the proposed innovative crude oil production method and the comparison baseline method. Each piece of equipment or stream appearing on the process flow diagrams shall be clearly identified and shall include data on its energy and materials balance. The system boundary shall be shown in the schematic.

B. A description of all feedstocks used, including their points of origination, all feedstock transportation distances and modes, and all processing to which feedstocks are subject. This discussion shall cover energy and chemical use, transport modes and distances, storage, and processing. A description of all non-feedstock inputs used in the crude production process.

C. A description of all co-products, byproducts, and waste products.

D. A description of all facilities involved in the production of the crude oil and other byproducts, co-products, and waste products.

E. A list of all combustion-powered equipment, along with their respective capacities, sizes, or rated power, fuel utilization type, and proposed use throughout the crude production lifecycle.

F. A description of the thermal and electrical energy consumption that occurs throughout the crude production life cycle. All fuels used (natural gas, biogas, coal, biomass, etc.) must be identified. The regional electrical energy generation fuel mix used in the analysis must be identified. Internally generated power such as cogeneration and combined heat and power must also be described.

G. A description of the transportation modes used throughout the crude production life cycle. This discussion must identify origins and destinations (at least on a regional basis), cargo carrying capacities, fuel shares, and the distances traveled in each case.

iii. The application shall include complete life cycle assessments performed on the proposed innovative crude oil production method and its comparison baseline method using OPGEE or an alternative model approved by the Executive Officer. Electronic copies of the models shall be provided. The

descriptions of the life cycle assessment results must provide

A. Detailed information on the energy consumed, the greenhouse gas emissions generated, and the final carbon intensity.

B. Documentation of all non-default model input values used in the carbon intensity calculation process. If values for any significant crude oil production parameters are unknown, the application shall so state and model default values shall be used for these parameters in the analysis.

C. Detailed description of all supporting calculations that were performed outside of the model.

D. Documentation of all modifications other than those covered by item (II) above, made to the model. This discussion shall include sufficient specific detail to enable the Executive Officer to replicate all such modifications and, in combination with the inputs and supporting calculations identified in items II and III above, replicate the carbon intensity results reported in the application.

iv. A list of references covering all information sources used in the preparation of the life cycle analysis. All reference citations in the lifecycle analysis report shall include in-text parentheticals stating the author's last name and date of publication. All in-text parenthetical citations shall correspond to complete publication information provided in the list of references, and complete publication information shall at a minimum, identify the author(s), author's affiliation, title of the referenced document, publisher, publication date, and pages cited. For internet citations, the reference shall include the universal resource locator (URL) address of the citation, as well as the date the website was last visited.

v. A signed transmittal letter from the applicant attesting to the veracity of the information in the application packet and declaring that the information submitted accurately represents the long-term, steady state operation of the innovative crude oil production method described in the application packet. The transmittal letter shall be the original copy, be on company letterhead, be signed by an officer of the applicant with authority to attest to the veracity of the information in the application and to sign on behalf of the applicant, and be from the applicant and not from an entity representing the applicant (such as a consultant or legal counsel).

vi. All documents (including spreadsheets and other items not in a standard document format) that contain confidential business information (CBI) must prominently display the phrase "Contains Confidential Business Information" above the main document title and in a running header. Additionally, a separate, redacted version of such documents must also be submitted. The redacted versions must be approved by the applicant for posting to a public LCFS web site. Within redacted documents, specific redactions must be replaced with the phrase "Confidential business information has been deleted." This phrase must be displayed clearly and prominently wherever CBI has been redacted.

vii. All applications, supporting documents, and all other relevant data or calculation or other documentation, except for the transmittal letter described in paragraph (v) above, shall be submitted electronically such as via e-mail or an online-based interface unless the Executive Officer has approved or requested in writing another submission format.

d. Application Approval Process. The application must be approved pursuant to this section before a regulated party may obtain credit under the LCFS regulation for producing fuels or blendstocks from the innovative crude.

i. Within 30 calendar days of receipt of an application designated by the applicant as ready for formal evaluation, the Executive Officer shall advise the applicant in writing either that:

A. The application is complete, or

B. The application is incomplete and the Executive Officer will identify which requirements of section 95486(b)(2)(A)(4)a-c. above have not been met.

1 The applicant will be permitted to submit additional information to meet the requirements to section 95486(b)(2)(A)(4)a-c.

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

ii. Once the Executive Officer has deemed an application to be complete, it will be posted for public comment at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm. Comments will be accepted for 10 calendar days following the date on which the application was posted. Only comments related to potential factual or methodological errors may be considered. The Executive Officer will forward to the applicant all comments identifying potential factual or methodological errors. Within 30 days, the applicant shall either make revisions to its application and submit those revisions to the Executive Officer, or submit a detailed written response to the Executive Officer explaining why no revisions are necessary.

iii. An application submitted pursuant to this section shall not be approved if the Executive Officer determines:

A. Based upon the application information submitted pursuant to this section, the proposed crude production method is not innovative, as that term is defined in this section.

B. Based upon the application information submitted pursuant to this section, the applicant's carbon intensity calculations cannot be replicated using the ARB OPGEE model.

iv. If the Executive Officer finds that an application meets the requirements set forth in subsection 95486(b)(2)(A)4, the Executive Officer will take final action to approve the crude oil carbon intensity value and the associated innovative crude oil production method, describing all limitations and operational conditions to which the innovative crude oil production method will be subject, by amending this section 95486 in accordance with Government Code section 11340, et seq. If the Executive Officer finds that an application does not meet the requirements of subsection 95486(b)(2)(A)4, the application will not be approved, and the applicant will be notified in writing and the basis for the disapproval shall be identified.

v. Recordkeeping. Each crude oil producer that has crude approved as innovative must maintain records identifying each facility at which it produces crude oil for sale in California under the approved innovative crude oil production method. For each such facility, the crude oil producer must compile records for at least three years showing:

A. The annual volume of crude oil produced using the approved innovative crude oil production method and the annual volume of crude subsequently sold in California under the approved innovative crude oil production method.

B. Compliance with all limitations and operational conditions identified by the Executive Officer in paragraph iv, above.

If the crude oil approved as innovative is marketed as part of a crude blend, the crude oil producer must also maintain for at least three years annual records identifying the constituent crudes that comprise the blend and the percentage that each constituent crude contributes to the blend.

These records shall be submitted to the Executive Officer within 20 days of a written request received from the Executive Officer or his/her designee, provided the request is made before the expiration of the period during which the records are required to be retained.

~~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 oil), 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. *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:

$$Deficits^{XD}_{Base_i}(MT) = (CI^{XD}_{S\tan dard_i} - CI^{XD}_{Avg_i}) \times E^{XD}_{Total_i} \times C$$

and

$$Deficits^{XD}_{Incremental_i}(MT) = (CI^{XD}_{Avg_i} - CI^{XD}_{HCICO_i}) \times E^{XD}_{HCICO_i} \times C$$

where,

i is the finished fuel or blendstock index;

$Deficits^{XD}_{Base}$ *(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;

$Deficits^{XD}_{Incremental}$ *(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;

$CI^{XD}_{S\tan dard}$ has the same meaning as specified in section 95485(a)(3)(A);

CI^{XD}_{Avg} 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_{Total}^{XD} is the adjusted total amount of fuel energy, in MJ, from gasoline (*XD*="gasoline") or diesel (*XD*="diesel"), derived from 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 determine whether the Carbon Intensity Lookup Table contains one or more pathways that closely correspond to the regulated party's fuel pathways. This determination shall be made as set forth in 95486 (a)(2). If the regulated party determines that the Carbon Intensity Lookup Table contains one or more pathways that closely correspond to the regulated party's pathways, the regulated party shall use the carbon intensity value in the Lookup Table that most closely corresponds to the production process used to produce the regulated party's fuel. The determination that the Carbon Intensity Lookup Table contains one or more pathways that closely correspond to the regulated party's pathways, and the ultimate selection of a Lookup Table carbon intensity value selected by the regulated party is subject to approval by the Executive Officer as set forth in section 95486 (a)(3).

[Note: For example, if one of the regulated party's fuels is compressed natural gas (CNG) used in a light-duty vehicle, and the CNG is derived from dairy digester biogas, the regulated party would use the total carbon intensity value in Carbon Intensity Lookup Table 6 (i.e., the last column in

Lookup Table 6) corresponding to the applicable Fuel (compressed natural gas) and Pathway Description (Dairy Digester Biogas to CNG). The result in this example would be a total carbon intensity value of 13.45 gC02e/MJ.]

(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, or modifications to one or more inputs to an alternative model(s) used by the Executive Officer under section 95486(b)(1) ~~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 inputs to CA-GREET or other alternative model(s) approved by the Executive Officer pursuant to section 95486(b)(1) ~~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 or other alternative model(s) approved by the Executive Officer pursuant to section 95486(b)(1) 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 (February 2009), which is incorporated by reference, or other model determined by the Executive Officer to be at least equivalent to the GTAP Model (February 2009).

(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, or, pursuant to section 95486 (b)(1), an alternative model that has been determined by the Executive Officer to be at least equivalent to 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. Alternatively, the regulated party may demonstrate to the Executive Officer's written satisfaction that, pursuant to section 95486 (b)(1), a method that is at least equivalent to CA-GREET could successfully be employed to generate the proposed new pathway carbon intensity. If the Executive Officer determines that the CA-GREET model or a proposed alternative 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 (February 2009), which is incorporated by reference, or other model determined by the Executive Officer to be at least equivalent to the GTAP Model (February 2009).

(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 expects 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~~ certification of a proposed Method 2A or 2B pathway, 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 pursuant to section 95486(f)(5) 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 title 17, CCR, sections 91000-91022 and the California Public Records Act (Government Code § ~~section~~ 6250 et seq.); and

(B) If the application is certified 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 LCFS Reporting Tool for use by the applicant. ~~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 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 website at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm and make it available for public review. 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.* The Executive Officer shall take final action to approve an application for approval of a new carbon intensity value and associated fuel pathway submitted pursuant to this subsection (f) by amending the Lookup Table(s) in accordance with the rulemaking provisions of the Administrative Procedure Act (Government Code section 11340 et seq.). The Executive Officer shall notify the regulated party accordingly and publish the final action on ARB's website at http://www.arb.ca.gov/fuels/lcfs/lcfs.htm. If the Executive Officer disapproves an application, the disapproval shall identify the basis for the disapproval.~~

(3) *Fuel Pathway Application Requirements.*

(A) No fuel pathway may be certified under this subsection (f) unless the applicant demonstrates each of the following to the Executive Officer's satisfaction:

1. The fuel that is produced from the proposed pathway would comply with all applicable ASTM or other generally recognized national consensus standards.

2. The proposed fuel pathway would be covered by an approved Multimedia Analysis, as required under section 95487.

3. If applied for under the Method 2A provisions in section 95486(c), the proposed fuel pathway must:

   a. Result in a fuel carbon intensity reduction of at least 5 gCO_2e/MJ over the applicable reference fuel pathway. The reference fuel pathway is the pathway from the Carbon Intensity Lookup Table that most closely corresponds to the proposed Method 2A pathway.

   b. Be for a fuel that the applicant can and expects to provide in California in quantities of not less than 10 million gallons per year.

4. The fuel that would be produced under the proposed pathway would not be exempt from the LCFS under section 95480.1 (c)

(B) Any person may apply to the Executive Officer for use of a transportation fuel pathway under the LCFS. Unless otherwise noted, all applicants for a certified Method 2A or 2B fuel pathway shall submit the items in the list below.

1. All documents (including spreadsheets and other items not in a standard document format) that contain confidential business information (CBI) must prominently display the phrase "Contains Confidential Business Information" above the main document title and in a running header. Additionally, a separate, redacted version of such documents must also be submitted. The redacted versions must be approved by the applicant for posting to a public LCFS web site. Within redacted documents, specific redactions must be replaced with the phrase "Confidential business information has been deleted." This phrase must be displayed clearly and prominently wherever CBI has been redacted.

2. All applications and supporting documents except for the transmittal letter described in (C)(12) below shall be in electronic form unless the Executive Officer has approved or requested in writing another submission format. Documents such as receipts, which are available in paper form only, shall be scanned into an electronic file for submittal. The transmittal letter described in (C)(12) below shall be submitted as an original copy on paper and signed in blue ink.

(C) All applications for LCFS fuel pathway certification shall, unless otherwise noted, include the following:

1. A completed Method 2A/2B application form, available at http://www.arb.ca.gov/fuels/2a2b-app.doc, which includes the following information.

   a. Company name and mailing address
   b. Name and contact information for a primary contact person
   c. Name and contact information for Consultant/Third Party Application Preparer
   d. LCFS Reporting Tool Organization ID code (if known)
   e. U.S. Environmental Protection Agency (U.S. EPA) Company ID (if known)
   f. U.S. EPA Facility ID (if known)
   g. Pathway application type and brief description of proposed pathway
   h. For Method 2A applicants only:
      i. Reference pathway
      ii. Compositional differences (if any) between the fuel produced by the new sub-pathway and the reference pathway identified
   i. Final carbon Intensity of the proposed pathway or sub-pathway
   j. Annual volume of fuel that would be produced using the proposed new pathway (millions of gallons per year [MGY])
   k. Annual volume of fuel produced using the proposed new pathway that would enter the California market
   l. Lower Heating Value of the fuel to be produced from the new pathway (megajoules per gallon)
   m. The range of production volumes over which the proposed pathway carbon intensity value is valid.

n. Any information that may be helpful in determining the land use change impacts (if any) of the proposed pathway

2. A lifecycle analysis report, which includes the following information:

a. A detailed description of the full fuel production process. The description should include:

i. A description of the full well-to-wheels fuel life cycle, including the geographic locations where each primary step in the fuel life cycle occurs. This description shall identify where the system boundary was established for the purposes of performing the life cycle analysis on the proposed pathway, and shall be accompanied by a schematic flow chart illustrating the generalized fuel life cycle. The system boundary shall be shown in the schematic.

ii. A description of all feedstocks used, including their points of origination, all feedstock transportation distances and modes, and all pre-processing to which feedstocks are subject. For fuels utilizing agricultural crops for feedstocks, the description shall include the agricultural practices used to produce those crops. This discussion shall cover energy and chemical use, typical crop yields, feedstock harvesting, transport modes and distances, storage, and pre-processing (such as drying or oil extraction). If feedstock transportation modes and distances and/or agricultural practices are unknown, the application shall so state, and shall use CA-GREET 1.8b defaults for these parameters in the analysis.

iii. A description of all non-feedstock inputs used in the fuel production process. These include, but are not limited to enzymes, fertilizers, chemicals (including agricultural chemicals), and microorganisms.

iv. A description of the transportation modes used throughout the fuel life cycle. This discussion must identify origins and destinations (at least

on a regional basis), cargo carrying capacities, fuel shares, and the distances traveled in each case.

v. A description of all facilities involved in the production of fuel under the proposed pathway.

vi. A list of all combustion-powered equipment, along with their respective capacities, sizes, or rated power, fuel utilization type, and proposed use throughout the fuel lifecycle.

vii. A discussion of the thermal and electrical energy consumption that occurs throughout the fuel life cycle. All fuels used (natural gas, biogas, coal, biomass, etc.) must be identified. The regional electrical energy generation fuel mix used in the CA-GREET analysis must be identified. Internally generated power such as cogeneration and combined heat and power must also be described.

viii. A description of all co-products, byproducts, and waste products associated with production of the proposed fuel.

b. A description of the formal life cycle analysis performed on the proposed pathway. This description must provide clear, detailed information on the energy consumed, the greenhouse gas emissions generated, and the final pathway carbon intensity, as calculated using the approved version of CA-GREET. Important intermediate values in each of the primary life cycle analytical categories shall be shown. Those categories are upstream processes, feedstock and fuel production, feedstock and finished fuel transport, and the use of the fuel in a vehicle. It shall include, at a minimum:

i. A table showing all CA-GREET input values used in the analysis. The worksheet, row, and column locations of the cells into which these inputs were entered shall be identified. The locations of unchanged default values should not be identified. In combination with the inputs identified in item b.ii. below, this table

shall enable the Executive Officer to enter the reported inputs into a copy of CA-GREET 1.8b and to replicate the carbon intensity results reported in the application.

ii. A detailed discussion of all modifications other than those covered by item b.i. above, made to the CA-GREET spreadsheet. This discussion shall allow the Executive Officer to duplicate all such modifications and, in combination with the inputs identified in item b.i. above, replicate the carbon intensity results reported in the application.

iii. Documentation of all non-default CA-GREET values used in the carbon intensity calculation process.

iv. A detailed description of all supporting calculations that were performed outside of the CA-GREET spreadsheet.

c. A list of references covering all information sources used in the preparation of the life cycle analysis. All reference citations in the lifecycle analysis report shall include in text parentheticals stating the author's last name and date of publication. All in text parenthetical citations shall correspond to complete publication information provided in the list of references, and complete publication information shall at a minimum, identify the author(s), author's affiliation, title of the referenced document, publisher, publication date, and pages cited. For internet citations, the reference shall include the universal resource locator (URL) address of the citation, as well as the date the website was last visited.

3. Invoices covering a period of no less than two years for all forms of energy consumed in the fuel production process. The period covered shall be the most recent two-year period of relatively typical operation. Each set of invoices (natural gas, electricity, coal, etc.) shall be accompanied by an Excel spreadsheet summarizing the invoices. Every invoice submitted shall appear as a record in the summary. Each record shall, at a minimum, specify in a separate column the period covered by the purchase, the quantity of energy

purchased during that period, the invoice amount, and any special information that applies to that record (the special information column need not be populated for every record).

4. If transportation distances other than the CA-GREET defaults are used in the life cycle analysis of the proposed fuel pathway, receipts covering a period of no less than two years for all affected hauling trips shall be provided. Each set of invoices shall be accompanied by an Excel spreadsheet summarizing the invoices. Every invoice submitted shall appear as a record in the summary. Each record shall, at a minimum, specify in a separate column the period covered by the purchase, the number of trips purchased, the distance covered by each trip, the invoice amount, and any special information that applies to that record (the special information column need not be populated for every record).

5. A copy of the CA-GREET spreadsheet prepared for the life cycle analysis of the proposed fuel pathway. All Method 2A and 2B pathway carbon intensities must be calculated using CA-GREET, version 1.8b unless the Executive Officer has approved the use of a method that is at least equivalent to the calculation methodology used by CA-GREET version 1.8b.

6. One or more process flow diagrams that, singly or collectively, depict the complete fuel production process. Each piece of equipment or stream appearing on the process flow diagram shall include data on its energy and materials balance, along with any other critical information such as operating temperature, pH, rated capacity, etc.

7. All applicable air pollution control permits issued by the local air pollution control jurisdiction. If air pollution control permits are not required, the life cycle analysis report shall fully explain why this requirement does not exist.

8. Descriptions of all co-located facilities, which in any way utilize outputs from, or provide inputs to the fuel production facility. Such co-located facilities include but are not limited to cogeneration facilities, facilities that process or utilize co-products such as distillers grains with solubles, facilities that provide waste heat to the fuel production process, and facilities which provide or pre-process feedstocks or thermal energy fuels. If energy is supplied to the fuel production

facility by a co-located cogeneration plant and that plant also supplies energy to other facilities, those other facilities must be identified and described.

9. A copy of the federal Renewable Fuel Standard 2 (RFS2) Third Party Engineering Review Report required pursuant to 40 CFR 80.1450, if available. If the RFS2 engineering report is not available, the Life Cycle Analysis Report should explain why it is not available.

10. Copies of the federal Renewable Fuel Standard 2 (RFS2) Fuel Producer Co-products Report as required pursuant to 40 CFR 80.1451(b)(1)(ii)(M)-(N). The period covered by the Co-products Report submittal to the Executive Office shall coincide with the period covered by the energy receipts submitted under Paragraph 3, above.

11. Audited statements or reports showing annual finished fuel sales. The period covered by the finished fuel sales reports submittal to the Executive Office shall coincide with the period covered by the energy receipts submitted under Paragraph 3, above.

12. A signed transmittal letter from the applicant attesting to the veracity of the information in the application packet and declaring that the information submitted accurately represents the long-term, steady state operation of the fuel production process described in the application packet. The transmittal letter shall:

    a. Be the original copy. Photocopies, scanned electronic copies, facsimiles, and other non-original documents will not be accepted.

    b. Be on company letterhead.

    c. Be signed in blue ink by an officer of the applicant with authority to attest to the veracity of the information in the application and to sign on behalf of the applicant.

    d. Be from the applicant and not from an entity representing the applicant (such as a consultant or legal counsel).

(D) Within 30 calendar days of receipt of an application designated by the applicant as ready for formal evaluation, the Executive Officer shall advise the applicant in writing either that the application is complete or incomplete. If it is deemed incomplete, the Executive Officer shall identify which requirements of section 95486(f)(3)(C) above have not been met. The applicant will be permitted to submit additional information to meet the requirements to section 95486(f)(3)(C). If the applicant is unable to achieve a complete application within 180 calendar days of the Executive Officer's receipt of the application, the application shall be denied on that basis, and the applicant will be informed in writing.

(E) Once the Executive Officer has deemed an application to be complete, it will be posted to the Method 2A/2B website for public comment. Comments will be accepted for 10 calendar days following the date on which the application was posted. Only comments related to potential factual or methodological errors may be considered. The Executive Officer will forward to the applicant all comments identifying potential factual or methodological errors. Within 30 days, the applicant shall either make revisions to its application and submit those revisions to the Executive Officer, or submit a detailed written response to the Executive Officer explaining why no revisions are necessary.

(F) If public comments are received pursuant to 95486(f)(3)(E) above, evaluation of the application will begin the first business day after the Executive Officer receives responding materials submitted by the applicant, as provided in section 95486(f)(3)(E). If no public comments are received pursuant to 95486(f)(3)(E), evaluation will begin the business day following close of the public comment period. The applicant will be informed in writing of the Executive Officer's findings by no later than 90 calendar days from the date that evaluation begins.

(G) At any point, and from time to time, during the formal evaluation process, the Executive Officer may request in writing additional information or clarification from the applicant. Between the time that request is issued, and the time the requested information is submitted, no evaluation time, as described in (F), above, will be deemed to have elapsed.

(H) As provided in this subsection, if the Executive Officer is unable to reach a determination within the time period specified in (F) above, the application will be denied without prejudice.

1. Applications denied without prejudice may be resubmitted for consideration under this section 95486.

2. If the basis of the denial was that the proposed pathway is not amenable to evaluation through the certification process described in section 95486(f)(3), the Executive Officer will inform the applicant in writing that an approval under the Method 2 certification process is not possible, but that he or she may request an evaluation under the terms of the California Administrative Procedure Act (Government Code section 11340.6) as an amendment to the Low Carbon Fuel Standard.

(l) The Executive Officer will evaluate all applications against the following criteria.

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

i. Starting with a copy of CA-GREET that had not previously been used for calculations associated with the proposed pathway, the Executive Officer will enter all the inputs reported by the applicant under provision 95486(f)(3)(C)2.b.i.

ii. The Executive Officer will then apply all CA-GREET modifications reported by the applicant under provision 95486(f)(3)(C)2.b.ii.

iii. If the Executive Officer is able to duplicate the applicant's CA-GREET results, the Executive Officer will proceed to (l)2. below. If the Executive Officer is not able to duplicate the applicant's CA-GREET results, the application shall be denied.

2. Using the energy purchase data obtained from receipts submitted by the applicant and the fuel production accounting data submitted by the applicant, the Executive Officer will verify the energy consumption inputs to the CA-GREET carbon intensity calculations that were submitted by the applicant pursuant to 95486(C)(2)b.i. If the Executive Officer is unable to verify the applicant's CA-GREET energy consumption inputs by calculating them from energy receipt data and fuel production volumes, the application shall be denied.

(J) If the Executive Officer finds that an application meets the requirements of subsection 95486(f)(3)(I) and determines that the applicant has satisfactorily made the demonstrations identified in subsection 95486(c), then the Executive Officer will certify in writing the fuel pathway for use by the applicant and shall describe all limitations and operational conditions to which the new pathway will be subject. The Executive Officer shall act on a complete application within the time periods specified in paragraph (F), above.

(K) If the Executive Officer at any time determines that a certified fuel pathway does not meet the operational conditions specified in the written certified notification issued by the Executive Officer as specified in paragraph (J), above, the Executive Officer shall revoke or modify the certification as is necessary to assure that no fuel that does not meet all applicable operational conditions, including the specified fuel life cycle carbon intensity, is produced for sale in California under that pathway. The Executive Officer shall not revoke or modify a prior certification order without first affording the applicant an opportunity for a hearing in accordance with title 17, CCR, section 60040, et seq.

(L) *Recordkeeping.*

1. Each fuel provider that has been certified to use a fuel pathway pursuant to subsection (c) must maintain records identifying each facility at which it produces a transportation fuel for sale in California under the certified fuel pathway. For each such facility, the entity must compile records for at least three years showing:

   a. the volume of fuel produced and subsequently sold in California under the certified fuel pathway.

   b. the quantity of all forms of energy consumed to produce the fuel covered in section 1. above. Thermal energy shall be reported in units of BTUs per gallon and electrical energy in units of kilowatt-hours per gallon of fuel produced. All receipts for the purchase of this fuel shall be maintained.

   c. The quantities of all products co-produced with the fuel covered by certified LCFS pathway. Records shall be kept on only those co-products which are included in the calculation of the pathway carbon intensity. Copies

of the federal Renewable Fuel Standard 2 Fuel Producer Co-products Report described in 95486(f)(3)(C)10 will meet this requirement. For co-products for which copies of the federal Renewable Fuel Standard 2 Fuel Producer Co-products Report are not available, sales receipts and bills of lading for the sale of all such co-products must be retained. If the amount of co-product produced exceeds the amount sold by five percent or more, full documentation of the fate of the unsold fractions shall be maintained.

These records shall be submitted to the Executive Officer within 20 days of a written request received from the Executive Officer or his/her designee, provided the request is made before the expiration of the period during which the records are required to be retained.

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

§ 95488. ~~[Reserved]~~ Banking, Trading and Purchase of Credits.

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

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

(2) *Calculation of Compliance Obligation and Credit Balance at the End of a Compliance Period.* A regulated party must calculate the credit balance at the end of a compliance period as follows:

$$\text{Compliance Obligation} = \text{Deficits}^{Gen} + \text{Deficits}^{Carried\ Over}$$

$$\text{Credit Balance} = \text{Credits}^{Gen} + \text{Credits}^{Acquired} - \text{Sum of } (\text{Credits}^{retired} + \text{Credits}^{Sold} + \text{Credits}^{Exported})$$

where:

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

$Deficits^{Carried\ Over}$ are the deficits carried over from the previous compliance period;

$Credits^{Gen}$ are the total credits generated pursuant to section 95488;

$Credits^{Acquired}$ are the total credits purchased or otherwise acquired, including carry back credits acquired pursuant to section 95488(b)(3);

$Credits^{Sold}$ are the total credits sold or otherwise transferred;

$Credits^{Exported}$ are the total credits exported to programs outside the LCFS; and

$Credits^{Retired}$ are the total credits retired within the LCFS.

(3) *Compliance Demonstration.* A regulated party's annual compliance obligation is met when the regulated party demonstrates via its annual report that it possessed and has retired a number of credits from its credit account (established pursuant to section 95488) that is equal to its compliance obligation.

(4) *Deficit Carryover.* A regulated party that does not retire sufficient credits to fully offset its compliance obligation creates a negative credit balance in a compliance period. The regulated party may carry over the deficit to the next compliance period, without penalty, if both the following conditions are met:

(A) the regulated party fully met its annual compliance obligation for the previous compliance period; and

(B) the number of $Credits^{retired}$ for the current annual compliance period is at least equal to 90 percent of the current annual compliance obligation.

(5) *Deficit Reconciliation.*

(A) A regulated party that meets the conditions of deficit carryover, as specified in section 95488(a)(4), 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 generated credits ($Credits^{Gen}$), by acquisition of an equal amount of credits from another regulated party ($Credits^{Acquired}$), or by any combination of these two methods.

(B) If the conditions of deficit carryover as specified in section 95488(a)(4) are not met, a regulated party is subject to penalties to the extent permitted under State law. In addition, the 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 generated credits ($Credits^{Gen}$), by acquisition of an equal amount of credits from another regulated party ($Credits^{Acquired}$), or by any combination of these two methods.

(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.

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

(1) Upon submission and acceptance of a quarterly report, the total number of credits generated through the supply of fuels or blendstocks with carbon intensity values below that of the applicable standard will be deposited in a credit account of the applicable regulated party. Once banked, credits may be retained indefinitely, retired to meet a compliance obligation or transferred to other regulated parties.

(2) The Executive Officer may, at the time of credit creation or credit transfer, assign a unique identification number to each credit. Credits are subject to review and audit by the Executive Officer, and credits may be reversed or adjusted as necessary by the Executive Officer upon a finding that the credits were improperly generated. A proposed credit transfer between regulated parties is also subject to review and verification by the Executive Officer and may be disallowed or adjusted as specified in sections 95488(c)(1)(C)(3) and 95488(c)(4) by the Executive Officer or a third party designated by the Executive Officer.

(3) *Acquisition of "Carry Back" Credits to Meet Obligation.*

(A) *Extended Credit Acquisition Period.* A regulated party may acquire, via purchase or transfer, additional credits between January 1 and March 31 ("extended period") to be used for meeting the compliance obligation of the year immediately prior to the extended period. Credits acquired for this purpose are defined as "carry back" credits.

(B) A carry back credit may be used for the purpose of meeting the compliance of an immediate prior year if all of the conditions below are met:

1. The additional credit was acquired during the extended period, and
2. The additional credit was generated in a compliance year prior to the extended period.

(C) *Use of Carry Back Credits.* Beginning 2012 and each year thereafter, a regulated party may elect to use additional credits purchased during the extended period for the purpose of meeting the obligation of the year immediately prior to the extended period.

1. A regulated party electing to use carry-back credits must identify the number and source of credits it desires to use as carry-back credits in its annual compliance report submitted to the Executive Officer no later than April 30 of the year in which the additional credits were obtained.

2. A regulated party electing to use carry-back credits:

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

b. Must minimize its compliance shortfall by retiring all credits purchased during the extended period that are eligible to be used as carry back credits.

(c) *Credit Transfers.*

(1) A regulated party who wishes to sell or transfer credits ("the Seller") and a regulated party who wishes to purchase or acquire a credit ("the Buyer") may enter into an agreement to transfer credits.

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

$$\text{Total Credits} = Credits^{Gen} + Credits^{Acquired} - \text{Sum of } (Credits^{Retired} + Credits^{Sold} + Credits^{Exported})$$

where:

$Credits^{Gen}$, $Credits^{Acquired}$, $Credits^{Retired}$, $Credits^{Sold}$ and $Credits^{Exported}$

have the same meaning as those in section 95488(a).

(B) *Requirements for Documenting a Proposed Credit Transfer.* When a transfer agreement is desired, the Seller shall provide the Buyer a Credit Transfer Form 10282011-v1, which is hereby incorporated by reference and available at http://www.arb.ca.gov/fuels/lcfs/regamend/20111014_LCFS_Credit_Transfer_Form(2).pdf, containing the Seller's signature, date when the signature was entered, and the following information:

1. Date of the proposed Credit transfer agreement.
2. Names of the Seller and Buyer's Company as registered in the LCFS Reporting Tool.
3. The Federal Employer Identification Numbers (FEIN) of the Seller and Buyer's Company as registered in the LCFS Reporting Tool.
4. The first name and last name of the person who performed the transaction on behalf of the Seller's Company.
5. The phone number and email of the person who performed the transaction on behalf of the Seller's Company.
6. The first name and last name of the person who performed the transaction on behalf of the Buyer's Company.
7. The phone number and email of the person who performed the transaction on behalf of the Buyer's Company.
8. The number of credits proposed to be transferred and the credit identification numbers, if any, assigned to the credits by the board.
9. The price or equivalent value of the consideration (in U.S. dollars) to be paid per metric ton of credit proposed for transfer, excluding any fees.

Except as provided in section 95488(e) below, the Executive Officer will treat information submitted in Credit Transfer Forms as Confidential Business Information.

(C) *Requirements for the Purchase of a Credit.*

1. *Confirmation of Agreement for Credit Transfer.* After receiving the Credit Transfer Form from the Seller, it is the Buyer must confirm the accuracy of the information contained in the Credit Transfer Form by signing and dating the Credit Transfer Form.

2. *Reporting to the Executive Officer.* The Buyer shall submit the Credit Transfer Form with all of the required information

to the Executive Officer by electronic mail or another submission method as instructed by the Executive Officer.

3. *Recording of a Credit Transfer.* The Executive Officer will record the transfer request, and will update the account balance of the Seller and Buyer to reflect the proposed transfer. Within 5 business days of receiving a Credit Transfer Form, the Executive Officer shall, either:

a. Process and approve the transfer request and update the account balances of the Seller and Buyer to reflect the proposed, provided the Executive Officer determines all required information was submitted and it accurately reflects the parties' positions at the time of the proposed transfer; or

b. Notify the parties that the proposed is infeasible and identify the reasons for rejecting the transfer.

(2) *Frequency of Credit Transfer.* Credits may be transferred between a Seller and Buyer on a frequency that is agreed upon between the two parties.

(3) *Facilitation of Credit Transfer.* A Seller or Buyer may elect to use a third party (a "credit facilitator") to facilitate the transfer of credits for the Seller, the Buyer or both. A credit facilitator may, with the consent of the parties, conduct a "blind transaction" where the Buyer of the credit does not know the identity of the Seller, and/or the Seller of the credit does not know the identity of the Buyer. The credit facilitator may include, but is not limited to, a credit transfer service agency or broker who assists in arranging the transfer of credits. However, a credit facilitator cannot own or otherwise exercise control over the credit. If the credit facilitator acts on the behalf of the buyer, seller or both to document the proposed transfer pursuant to the requirements of subsections (c)(1)(B) and (C) the credit facilitator must concurrently submit to the Executive Officer documentation showing that the credit facilitator has been authorized to act on behalf of the buyer, seller or both.

4. *Correcting Credit Transfer Errors.* A regulated party is responsible for the accuracy of information submitted to the Executive Officer. If a regulated party discovers an error in the information reported to the Executive Officer or recorded by the Executive Officer, the regulated party must inform the Executive Officer in writing within five (5) business days of the discovery. If the Executive Officer determines that the regulated party was responsible for the error, the regulated party must submit a corrected Credit Transfer Form. If the Executive Officer determines that the error

occurred during the recording of the credit by board staff, the Executive Officer will make the correction and no additional re-submissions are required.

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

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

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

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

(C) A regulated party that has not retired sufficient credits to meet 100 percent of its compliance obligation at the end of a compliance year must calculate the ratio of all remaining credits to outstanding deficits as specified in section 95488(a)(3).

(2) *Credit Retirement Hierarchy.* A regulated party may specify which credits are to be retired to meet its annual compliance obligation.

(A) Once a credit retirement specification has been submitted by a regulated party in its annual report, it is final and may not be altered.

(B) A regulated party not electing a credit retirement hierarchy will be assigned the default hierarchy provided by the Executive Officer.

(e) *Public Disclosure of Credit and Deficit Balances and Credit Transfer Information.*

(1) The Executive Officer shall, no less frequently than quarterly, provide to the public a report containing a summary of credit generation and transfer information including, but not limited to:

(A) Total deficits and credits generated or incurred in the most recent quarter for which data are available, including information on the types and quantities of fuels used to generate credits.

(B) Total deficits and credits generated or incurred in all previous quarters of the most recent year for which data are available, including information on the types and quantities of fuels used to generate credits.

(C) Total credits in possession of regulated parties and the total number of outstanding deficits carried over by regulated parties from a previous compliance year.

(D) Information on the credits transferred during the most recent quarter for which data is available including, but not limited to, the total number of credits transferred, the number transfers, the number of parties making transfers and the monthly average credit price for transfers that reported a price.

(E) Total credits transferred and used as carry-back credits during the first quarter of the current compliance period.

(2) The Executive Officer shall provide reports, no less frequently than monthly, to regulated parties and the public containing information necessary or helpful to the functioning of a credit market. Such reports may include recent information on credit transfer volumes, credit prices and price trends and other information determined by the Executive Officer to be of value to market participants and the public. The Executive Officer shall establish, and may periodically modify, a schedule for the routine release of these reports.

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

§ 95490. Enforcement Protocols.

Notwithstanding section 95484(bc) and (cd), 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(bc) and (cd). 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(bc) and (cd). 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 and 41511, Health and Safety Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 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.3d 411, 121 Cal.Rptr. 249 (1975).

California Environmental Protection Agency
Air Resources Board
Stationary Source Division

Supplement Version 2.0 to:

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"

Release Date: September 12, 2012

Need for a Supplement to the ULSD Pathway Document

The Low Carbon Fuel Standard (LCFS) regulation considers 2010 as the baseline year against which a ten percent reduction in GHG emissions is mandated by 2020.[1] Because data for crude oil supplied to California refineries in 2010 was not available during development of the original regulation, Lookup Table carbon intensity values for CARBOB (California Reformulated Gasoline Blendstock for Oxygenate Blending) and diesel were based on available crude supply data for the year 2006. At the time, an assumption was made that the carbon intensity for recovery of crude oil supplied to California refineries would not change substantially between 2006 and the 2010 baseline year. This assumption turned out to be incorrect as the percentages of crude recovered using thermal methods, mining and upgrading have increased. Therefore, as part of the 2011 Regulatory Amendments to the LCFS, ARB staff proposed updates to the baseline carbon intensity values for CARBOB and diesel using crude oil supply data from the year 2010.

Calculation Methodology for the Baseline Crude Average Carbon Intensity Value

Table 1 shows a breakdown of the sources of crude oil supplied to California refineries during 2010 and the carbon intensity values assigned to these crude sources. The percentage contribution of each crude was calculated using oil supply data obtained from the California Energy Commission.[2,3] The 2010 Baseline Crude Average carbon intensity, 11.39 gCO_2/MJ, was calculated by weighting the carbon intensity values by the percentage contribution to total crude oil supplied to California refineries. Table 2 gives carbon intensity values for fields in California producing 2,000 barrels oil per day or greater. All carbon intensity values were calculated using the Oil Production Greenhouse Gas Emissions Estimator (OPGEE) Version 1.0.[4] A description of the model is provided in the model user guide and technical documentation.[5] A detailed description of the model inputs used to estimate these carbon intensity values is provided in the attached Excel file.

Baseline Average Carbon Intensity Value for ULSD

The Baseline Average carbon intensity value for ULSD, 98.03 gCO_2/MJ, was determined by substituting the 2010 Baseline Crude Average carbon intensity value discussed above for the crude recovery (6.93 gCO_2/MJ) and crude transport (1.14 gCO_2/MJ) values reported in the ULSD pathway document.[6]

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[1] Proposed Regulation to Implement the Low Carbon Fuels Standard, ISOR Volume 1, 2009, page V-7
[2] California Energy Commission, Energy Almanac Webpage, Oil Sources to California Refineries, viewed on October 6, 2011 at http://energyalmanac.ca.gov/petroleum/statistics/crude_oil_receipts.html.
[3] California Energy Commission, Spreadsheet titled "2010 MCON Import Results 01-28-12 GDS".
[4] El-Houjeiri, H.M. and A.R. Brandt, Oil Production Greenhouse Gas Emissions Estimator (OPGEE) Model Version 1.0, September 4, 2012.
[5] El-Houjeiri, H.M. and A.R. Brandt, Oil Production Greenhouse Gas Emissions Estimator (OPGEE) Model Version 1.0, User guide and Technical documentation, August 22,2012.
[6] California Air Resources Board, February 28, 2009, Detailed CA-GREET Pathway for Ultra Low Sulfur Diesel (ULSD) from Average Crude Refined in California, Version 2.1

Table 1: 2010 Baseline Crude Average Carbon Intensity

Country	Crude Description	Percentage	CI (gCO2e/MJ)
United States	CA Average Crude Production	38.78	12.90
	Alaska North Slope	14.48	12.81
Saudi Arabia	Arab Extra Light	4.08	6.86
	Arab Light	7.67	6.75
Ecuador	Napo	3.28	7.45
	Oriente	7.66	9.34
Iraq	Basra Light	7.87	12.08
Russia	ESPO	2.98	12.09
Canada	Federated	0.11	7.77
	Koch Alberta	0.03	7.61
	Mixed Sweet Blend	0.31	7.75
	Albian Heavy Synthetic	0.76	21.02
	Cold Lake	1.63	18.74
	Suncor Synthetic A	0.21	24.49
	Suncor Synthetic C	0.25	24.49
	Syncrude Sweet	0.48	21.87
Brazil	Albacora Leste	0.74	7.35
	Frade	0.17	6.62
	Marlim	2.21	6.75
	Marlim Sul	0.30	9.69
	Ostra	0.18	5.71
	Polvo	0.17	5.62
Colombia	Castilla Blend	1.34	6.45
	Vasconia	0.41	6.63
Angola	Dalia	0.78	7.86
	Girassol	0.21	10.43
	Greater Plutonio	0.19	8.82
Peru	Loreto	0.70	5.82
	Mayna	0.15	7.14
Oman	Oman Blend	0.67	12.30
Argentina	Canadon Seco	0.26	7.54
	Escalante	0.15	7.51
	Hydra	0.06	8.03
Venezuela	Boscan	0.03	12.53
	Petrozuata	0.12	23.58
	Zuata Sweet	0.06	23.50
Kuwait	Eocene (Wafra)	0.15	5.59
	Ratawi (Wafra)	0.07	5.77
Australia	Pyrenees	0.11	5.96
Cameroon	Lokele	0.10	24.02
Nigeria	Bonny Light	0.08	17.88
Trinidad	Calypso	0.03	6.95
2010 Baseline Crude Average		**100.00**	**11.39**

Table 2: 2010 Carbon Intensity Values for California Fields (> 2000 BOPD)

Field	Production (BOPD)	CI (gCO2e/MJ)
Midway-Sunset	88,788	21.18
Kern River	75,004	9.55
Belridge, South	72,522	14.49
Cymric	42,399	19.91
Wilmington	36,577	6.36
Elk Hills	35,548	5.36
Lost Hills	31,321	11.40
San Ardo	16,571	28.82
Coalinga	15,448	25.36
Hondo	13,935	4.27
Ventura	12,474	4.35
Pescado	11,201	3.45
Sacate	8,690	2.33
Belridge, North	8,045	5.00
Kern Front	7,693	25.06
Round Mountain	7,331	28.73
Inglewood	7,227	8.74
Poso Creek	6,812	28.41
Point Pedernales	6,025	6.00
Point Arguello	5,726	8.68
McKittrick	5,526	15.47
Huntington Beach	5,004	7.80
Long Beach	3,987	5.12
Beta	3,939	1.74
Sockeye	3,613	5.82
Brea-Olinda	3,288	2.97
Dos Cuadras	3,173	3.83
Orcutt	2,947	12.52
Belmont, Offshore	2,395	3.19
Elwood, S., Offshore	2,385	4.18
Beverly Hills	2,244	3.33
Edison	2,044	9.03
Placerita	2,040	31.66
Buena Vista	2,000	13.61
All Others	51,336	6.69

California Environmental Protection Agency
Air Resources Board
Stationary Source Division

Supplement Version 2.0 to:

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"

Release Date: September 12, 2012

Need for a Supplement to the CARBOB Pathway Document

The LCFS regulation considers 2010 as the baseline year against which a ten percent reduction in GHG emissions is mandated by 2020.[1] Because data for crude oil supplied to California refineries in 2010 was not available during development of the original regulation, Lookup Table carbon intensity values for CARBOB (California Reformulated Gasoline Blendstock for Oxygenate Blending) and diesel were based on available crude supply data for the year 2006. At the time, an assumption was made that the carbon intensity for recovery of crude oil supplied to California refineries would not change substantially between 2006 and the 2010 baseline year. This assumption turned out to be incorrect as the percentages of crude recovered using thermal methods, mining and upgrading have increased. Therefore as part of the 2011 Regulatory Amendments to the LCFS, ARB staff proposed updates to the baseline carbon intensity values for CARBOB and diesel using crude oil supply data from the year 2010.

Calculation Methodology for the Baseline Crude Average Carbon Intensity Value

Table 1 shows a breakdown of the sources of crude oil supplied to California refineries during 2010 and the carbon intensity values assigned to these crude sources. The percentage contribution of each crude was calculated using oil supply data obtained from the California Energy Commission.[2,3] The 2010 Baseline Crude Average carbon intensity, 11.39 gCO_2/MJ, was calculated by weighting the carbon intensity values by the percentage contribution to total crude oil supplied to California refineries. Table 2 gives carbon intensity values for fields in California producing 2,000 barrels oil per day or greater. All carbon intensity values were calculated using the Oil Production Greenhouse Gas Emissions Estimator (OPGEE) Version 1.0.[4] A description of the model is provided in the model user guide and technical documentation.[5] A detailed description of the model inputs used to estimate these carbon intensity values is provided in the attached Excel file.

Baseline Average Carbon Intensity Value for CARBOB

The Baseline Average carbon intensity value for CARBOB, 99.18 gCO_2/MJ, was determined by substituting the 2010 Baseline Crude Average carbon intensity value discussed above for the crude recovery (6.93 gCO_2/MJ) and crude transport (1.14 gCO_2/MJ) values reported in the CARBOB pathway document.[6]

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[1] Proposed Regulation to Implement the Low Carbon Fuels Standard, ISOR Volume 1, 2009, page V-7

[2] California Energy Commission, Energy Almanac Webpage, Oil Sources to California Refineries, viewed on October 6, 2011 at http://energyalmanac.ca.gov/petroleum/statistics/crude_oil_receipts.html.

[3] California Energy Commission, Spreadsheet titled "2010 MCON Import Results 01-28-12 GDS".

[4] El-Houjeiri, H.M. and A.R. Brandt, Oil Production Greenhouse Gas Emissions Estimator (OPGEE) Model Version 1.0, September 4, 2012.

[5] El-Houjeiri, H.M. and A.R. Brandt, Oil Production Greenhouse Gas Emissions Estimator (OPGEE) Model Version 1.0, User guide and Technical documentation, August 22, 2012.

[6] California Air Resources Board, February 27, 2009, Detailed CA-GREET Pathway for California Reformulated Gasoline Blendstock for Oxygenate Blending (CARBOB) from Average Crude Refined in California, Version 2.1

Table 1: 2010 Baseline Crude Average Carbon Intensity

Country	Crude Description	Percentage	CI (gCO2e/MJ)
United States	CA Average Crude Production	38.78	12.90
	Alaska North Slope	14.48	12.81
Saudi Arabia	Arab Extra Light	4.08	6.86
	Arab Light	7.67	6.75
Ecuador	Napo	3.28	7.45
	Oriente	7.66	9.34
Iraq	Basra Light	7.87	12.08
Russia	ESPO	2.98	12.09
Canada	Federated	0.11	7.77
	Koch Alberta	0.03	7.61
	Mixed Sweet Blend	0.31	7.75
	Albian Heavy Synthetic	0.76	21.02
	Cold Lake	1.63	18.74
	Suncor Synthetic A	0.21	24.49
	Suncor Synthetic C	0.25	24.49
	Syncrude Sweet	0.48	21.87
Brazil	Albacora Leste	0.74	7.35
	Frade	0.17	6.62
	Marlim	2.21	6.75
	Marlim Sul	0.30	9.69
	Ostra	0.18	5.71
	Polvo	0.17	5.62
Colombia	Castilla Blend	1.34	6.45
	Vasconia	0.41	6.63
Angola	Dalia	0.78	7.86
	Girassol	0.21	10.43
	Greater Plutonio	0.19	8.82
Peru	Loreto	0.70	5.82
	Mayna	0.15	7.14
Oman	Oman Blend	0.67	12.30
Argentina	Canadon Seco	0.26	7.54
	Escalante	0.15	7.51
	Hydra	0.06	8.03
Venezuela	Boscan	0.03	12.53
	Petrozuata	0.12	23.58
	Zuata Sweet	0.06	23.50
Kuwait	Eocene (Wafra)	0.15	5.59
	Ratawi (Wafra)	0.07	5.77
Australia	Pyrenees	0.11	5.96
Cameroon	Lokele	0.10	24.02
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