PROPOSED CHANGES

Attached are proposed changes to the LCFS Regulations. They address two main issues raised in comments.

Clarification of Eligibility of "Fixed Guideway Systems" for a Green Tariff program; and Inclusion of hydroelectric generating resources as an eligible resource under a Green Tariff program

Changes have been made throughout the document to reflect the above change. We believe we have identified all places in the regulation where the language needs to be changed but are still reviewing and may identify additional clarifications.

The definition of "green tariff" has been provided, and further clarified that the Green Tariff Shared Renewable (GTSR) program is only one form such a program can take as the GTSR program only applies to California's three largest electric utilities (PG&E, Edison, and SDG&E).

The definition of "Load Serving Entity" should be expanded beyond the definition of "company" to include government entities (such as POUs and CCAs),

Clarification of Tier 2 Pathway application process for Electricity provided as a transportation fuel

Rather than try to shoehorn a Tier 2 Pathway application for electric energy into the current Tier 2 application requirements, which are geared towards liquid fuel, we are proposing separate language for a Tier 2 electricity-based application. The proposed language largely parallels existing language in the proposed regulation regarding determining CI values for the electric system and the use of "Book and Claim" accounting to determine the relative share of each generating resource used by a load-serving entity to meet its energy needs.

(58) "Fuel Production Facility" means the facility at which the fuel is produced. "Fuel Production facility" means, with respect to biomethane, a facility at which fuel is upgraded, purified, or processed into a fuel that meets applicable standards for pipeline quality natural gas.

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

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

(61) "Green Tariff" means a program where a retail seller of electric energy offers its customers an opportunity to purchase a portfolio of energy sourced solely from renewable or low carbon intensity energy resources such as the Green Tariff Shared Renewables" program established pursuant to California Senate Bill 43 (2016) and defined under the California Public Utilities Code sections 2831-2833..

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

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

(64)~~(44)~~ "Home ~~f~~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.

(65)~~(45)~~ "Hybrid eElectric ~~v~~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.

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

consumer, where the mass values for all greenhouse gases are adjusted to account for their relative global warming potential.

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

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

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

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

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

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

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

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

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

(82) "Material Misstatement of Operational Carbon Intensity" means any discrepancy, omission, or misreporting, or aggregation of the three, identified in the course of verification services that leads a verification team to believe that the reported operational CI (gCO_2e/MJ) contains one or more errors that, individually or collectively, result in an overstatement or understatement more than 5 percent of the reported operational CI, or2

Table 45. EER Values for Fuels Used in Light- and Medium-Duty, and Heavy-Duty Applications.

Light/Medium-Duty Applications (Fuels used as gasoline replacement)		*Heavy-Duty/Off-Road Applications (Fuels used as diesel replacement)*		*Aviation Applications (Fuels used as jet fuel replacement)*	
Fuel/Vehicle Combination	*EER Values Relative to Gasoline*	*Fuel/Vehicle Combination*	*EER Values Relative to Diesel*	*Fuel/Vehicle Combination*	*EER Values Relative to Conven-tional Jet*
Gasoline (incl. E6 and E10) Or E85 (and other ethanol blends)	~~1.0~~	Diesel fuel Or Biomass-based diesel blends	~~1.0~~	Jet fuel or Biomass-based jet fuel blends	1
CNG/ICEV	~~1.0~~	CNG or LNG (Spark-Ignition Engines) CNG or LNG (Compression-Ignition Engines)	0.9 ~~1.0~~		
Electricity/BEV, or PHEV	3.4	Electricity/BEV, or ~~PHEV* Truck~~ ~~Electricity/BEV or PHEV* Bus~~ Electricity/Fixed Guideway, Heavy Rail Electricity/Fixed Guideway, Light Rail Electricity/Fixed Guideway, Trolley Bus, Cable Car, Street Car Electricity Forklifts Electric TRU	~~2.7~~ ~~4.2~~ 5.0 4.6 3.3 3.1 3.8 3.4		
On-Road Electric Motorcycle	4.4				
H2/FCV	2.5	H2/FCV	1.9		

Control District, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). Reference: Sections 38501, 38510, 39515, 39516, 38571, 38580, 39000, 39001, 39002, 39003, 39515, 39516 and 43000, Health and Safety Code; Section 25000.5, Public Resources Code; and *Western Oil and Gas Ass'n v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

§ 95488.1. Fuel Pathway Classifications.

(a) For purposes of fuel pathway carbon intensity determination, all new LCFS fuel pathways certified after January 1, 2019 (or the effective date of this regulation) shall be classified as either a:

(1) Lookup Table pathway;
(2) Tier 1 pathway; or
(3) Tier 2 pathway, as described below.

(b) *Lookup Table Classification.* Pathways falling under this classification are the simplest pathways to use. The Board's staff develops Lookup Table pathway CI values using the CA-GREET3.0 model. Input variables and assumptions are provided in the CA-GREET3.0 Lookup Table Pathways – Technical Support Documentation (March 6, 2018), which is incorporated herein by reference.

(1) *Lookup Table Pathways That Do Not Require a Fuel Pathway Application.* The following pathways are developed using average values for inputs into the CA-GREET3.0 model, which are not expected to vary significantly across providers of the fuel. Entities seeking to generate credits under the pathways listed in 95488.1(b)(1)(A) through (E) may report fuel transactions directly in the LRT-CBTS without taking any action in the AFP.

(A) California Reformulated Gasoline Blendstock for Oxygenate Blending (CARBOB)
(B) California Ultra-low Sulfur Diesel (ULSD)
(C) Compressed Natural Gas
(D) Propane
(E) Electricity (California average grid)

(2) *Lookup Table Pathways That Require a Fuel Pathway Application.* Fuel pathway applicants for renewable electricity and all hydrogen Lookup Table pathways must register in the AFP and meet the application requirements of section 95488.5(b). Fuel pathway applicants may then report fuel transactions in the LRT-CBTS for the fuel pathways listed in 95488.1(b)(2)(A) through (F).

(A) Electricity (100 percent solar, wind, or hydroelectric)
(B) Electricity associated with time-of-use pathways for EV charging, fixed guideway systems and hydrogen production through electrolysis

the public comment process described in 95488.5(d)(2) to update the time-of-use pathway CIs in Table 7-2.

(e) The following supporting document, which is incorporated herein by reference, describes the methodology and data sources used to determine the carbon intensity values for the fuel pathways, shown below in Table 7-1, and the hourly windows for time-of-use electricity pathways, shown below in Table 7-2:

Industrial Strategies Division, California Air Resources Board. March 6, 2018. CA-GREET3.0 Lookup Table Pathways Technical Support Documentation.

Table 7-1. Lookup Table for Gasoline and Diesel and Fuels that Substitute for Gasoline and Diesel[2]

Fuel	Fuel Pathway Code	Fuel Pathway Description	Carbon Intensity Values (gCO_2e/MJ)
CARBOB	CBOB	CARBOB - based on the average crude oil supplied to California refineries and average California refinery efficiencies	101.43
Diesel	ULSD	ULSD - based on the average crude oil supplied to California refineries and average California refinery efficiencies	100.95
Compressed Natural Gas	CNGF	Compressed Natural Gas from Pipeline Average North American Fossil Natural Gas	79.03
Propane	PRPF	Fossil LPG from crude oil refining and natural gas processing used as a transport fuel	83.38
Electricity	ELCG	California average grid electricity supplied to electric vehicles and fixed guideway systems in California	93.42 (and subject to annual updates)
	ELCR	Electricity that is generated from 100 percent solar, wind or hydroelectric generation wind supplied to electric vehicles and fixed guideway systems in California	0.00
	ELCT	Electricity supplied under the time-of-use provision with a CI based on curtailment probability	(See Table 7-2)

[2] For comparison on an equivalent basis (gCO_2e per MJ of conventional fuel displaced), the CIs listed in Tables 7-1 and 7-2 must be divided by the EER in Table 5 for the appropriate fuel-vehicle combination. The EER-adjustment is made when fuel quantities are reported in the LRT-CBTS to calculate the correct number of credits or deficits, using the equations in 95486.1(a).

(A) Any renewable electricity certificates or other environmental attributes associated with the energy are not produced, or are retired and not claimed under any other program with the exception of the federal RFS.

(B) The generation equipment is directly connected through a dedicated line to a facility such that the generation and the load are both physically located on the customer side of the utility meter. The generation source may be grid-tied, but a dedicated connection must exist between the source and load.

(C) The facility's load is sufficient to match the amount of renewable electricity claimed using a monthly balancing period.

(2) Biogas or biomethane must be physically supplied directly to the production facility. The applicant must submit the attestation set forth below in section 95488.8(i)(2)(C)2.

(i) Indirect Accounting for Renewable Electricity and Biomethane.

(1) *Book-and-Claim Accounting for Renewable or Low-CI Electricity Supplied as a Transportation Fuel or Used to Produce Hydrogen.* Reporting entities may use indirect accounting mechanisms for renewable electricity to reduce the CI of electricity supplied as a transportation fuel or for hydrogen production through electrolysis, provided the conditions set forth below are met:

(A) Reporting entities may report electricity dispensed to electric vehicles and fixed guideway systems or as an input to hydrogen production (including for purposes of the Renewable Hydrogen Refinery Credit) as renewable electricity without regard to physical traceability if it meets all requirements of this subdivision. The renewable electricity must be supplied to the grid within a California Balancing Authority (or local balancing authority for hydrogen produced outside of California). Such book-and-claim accounting for renewable electricity may span only two quarters. If a renewable electricity quantity (and all associated environmental attributes, including a beneficial CI) is supplied to the grid in one calendar quarter, the quantity claimed for LCFS reporting must be matched to grid electricity dispensed to electric vehicles or for hydrogen production no later than the end of the following calendar quarter. After that period is over, any unmatched renewable electricity quantities expire for the purpose of LCFS reporting.

(B) Renewable or Low-CI electricity can be indirectly supplied through a green tariff program (including the Green Tariff Shared Renewables program

described in California Public Utilities Code Section 2831-2833) or other contractual low carbon electricity supply relationship that meets the following requirements:

1. Electricity is generated using equipment owned by, or under contract to the pathway applicant for all environmental attributes of the project. In order to substantiate renewable electricity claims, the applicant must make contracts available to the Executive Officer, upon request, to demonstrate that the electricity meets the requirements of this subarticle. Generation invoices or metering records are required to substantiate the quantity of renewable electricity produced from the renewable assets. Monthly invoices must be unredacted copies of originals showing electricity sourced (in kWh) and contracted price;

2. All electricity procured by any LSE for the purpose of claiming a lower CI must be in addition to that required for compliance with the California Renewables Portfolio Standard or, for hydrogen produced outside of California, in addition to local renewable portfolio requirements;

3. Renewable energy certificates or other environmental attributes associated with the energy that is needed for compliance with the California Renewables Portfolio Standard or, for hydrogen produced outside of California, to meet local renewable portfolio requirements must be retired and not claimed under any other program with the exception of the federal RFS.

4.

5. Any Renewable energy ~~electricity~~ certificates or other environmental attributes associated with the energy that is in addition to that needed for compliance with the California Renewables Portfolio Standard or, for hydrogen produced outside of California, in addition to local renewable portfolio requirements must be ~~if any, are~~ retired and not claimed under any other program with the exception of the federal RFS and to verify green tariff claims.

(2) *Book-and-Claim Accounting for Pipeline- Injected Biomethane Used as a Transportation Fuel or to Produce Hydrogen.* Indirect accounting may be used for RNG used as a transportation fuel or to produce hydrogen, provided the conditions set forth below are met:

(A) RNG injected into the common carrier pipeline in North America

PROPOSED NEW SECTION 95488.7 (b) TO ADDRESS TIER 2 ELECTRICITY PATHWAY APPLICATIONS

§ 95488.7 (b)

(1) Use of LSE Specific Electricity Pathway. In order to reflect that certain LSEs have a portfolio of electricity generating resources in California with a carbon intensity significantly lower than the California Average Grid Electricity Pathway, a LSE may submit a Tier 2 Pathway to reduce the CI of electricity supplied as a transportation fuel on an annual basis. The LSE shall use the methodology described in the supporting document specified in section 95488.5(e), adjusted to reflect the LSE's specific portfolio of electricity generating resources to determine the CI of the LSE.

(2) Book-and-Claim Accounting for Low-CI Electricity Supplied as a Transportation Fuel or Used to Produce Hydrogen. A LSE may use indirect accounting mechanisms, without regard to physical traceability, for determining the portfolio of electricity generating resources used as an input to the CA-GREET 3.0 model to determine the reduction of the CI of electricity supplied as a transportation fuel or for hydrogen production through electrolysis, provided that;

(A) The electricity must be supplied to the grid within a California Balancing Authority (or local balancing authority for hydrogen produced outside of California);
(B) Electricity is generated using equipment owned by, or under contract to the LSE.
(C) The LSE provides contract invoices and metering data necessary to support its calculations; and
(D) The electricity portfolio may span only two quarters. If the electricity quantity (and all associated environmental attributes, including a beneficial CI) is supplied to the grid in one calendar quarter, the quantity claimed for LCFS reporting must be matched to the grid electricity dispensed for transportation fuel to electric vehicles, fixed guideway systems or for hydrogen production no later than the end of the following calendar quarter.

(3) Applicability of Other Tier 2 Requirements: For any Tier 2 Pathway application seeking to use only electricity as a transportation fuel, the Executive Director may waive any Tier 2 application requirements that are inapplicable to the use of electricity as a transportation fuel.