

Proposed LCFS Amendments (Non-Verification Topics)

Industrial Strategies Division
Transportation Fuels Branch

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California Environmental Protection Agency
 **Air Resources Board**

Overview – Proposed LCFS Amendments

- Hydrogen
 - SB 1505
 - Renewable electricity sources for H2 and EV stations
- Petroleum
 - Point of obligation for petroleum fuels
 - Credit limitation for innovative crude projects
 - Refinery and Tier 2 projects using CCS
- Know your customer check
- Pathway Processing
 - Changes to Documentation and Fuel Transport Mode
 - Lookup Table
 - CA-GREET 2.0 Model
- Improvements to Reporting

Proposed Amendments to Regulated Parties for Hydrogen

Senate Bill 1505 Background

- SB 1505 (Lowenthal, 2006) requirements include:
 - Hydrogen must be made from 33 percent renewable resources
 - Hydrogen vehicles must reduce GHG emissions by 30 percent as compared to gasoline vehicles on a per mile basis
- These requirements apply on a state-wide basis:
 - To hydrogen dispensed from state funded stations initially, and
 - To all stations after transportation use reaches 3,500 MT annually

Proposing to monitor statewide compliance under the LCFS reporting framework

LCFS Amendments to Regulated Parties for Hydrogen

- Currently hydrogen is designated as an opt-in fuel
- Draft proposal will:
 - Require that hydrogen providers register, report, and generate credits for all H₂ used in on-road transport
 - H₂-Forklift operators remain optional
 - Give priority to the station operator as the regulated party
 - If the station operator declines, the responsibilities default to the upstream hydrogen producer

Amendments in sections 95482(b), 95483(f), 95488(c)(4)(D)5

New Lookup Table Pathways

Pathways for Steam Methane Reformation

Delivered Liquid H₂ from reforming of average N. American Natural Gas

Delivered Gaseous H₂ from reforming of average N. American NG

Delivered Liquid H₂ from reforming of 100% renewable biomethane feedstocks

Delivered Gaseous H₂ from reforming of 100% renewable biomethane feedstocks

Pathways for Electrolysis

Delivered Gaseous H₂ from electrolysis using California average grid electricity

Delivered Gaseous H₂ from electrolysis using 100% renewable electricity

*On-site production qualifies for "delivered gaseous" pathways.
Transport impacts are minor (≈ 0.5 g/MJ), while liquefaction is energy- and GHG-intensive (>30 g/MJ).*

Amendments in section 95488(c)(4)(F) Table 6.

H₂ Benefits of LCFS Participation

- To state: Fully quantify conventional fuel displacement and GHG reductions
- To industry/market: LCFS credits are currently trading at around \$120/MT

LCFS Credit Values for Selected Representative H₂ Pathways

	100% Renewable Electrolysis	100% Biomethane SMR	33% Biomethane SMR	Natural Gas SMR (Gaseous H ₂)	Natural Gas SMR (Liquified H ₂)
CI Score (gCO ₂ e/MJ)	0	54	88	106	144
FCEV EER-adjusted CI	0	22	35	42	57
Credit Value (\$/kg)	\$3.47	\$2.70	\$2.20	\$1.95	\$1.41

1 kg ≈ 1.04 GGE

Qualifying Renewable Electricity Sources under the LCFS

- Currently, renewable electricity can only reduce the carbon intensity if it is directly supplied “behind the meter”
 - Proposing additional flexibility for **hydrogen**, to demonstrate SB 1505 compliance, and **electric vehicle charging stations**. Renewable electricity can reduce fuel carbon intensity if:
 - It is obtained through a program with eligibility requirements that match or are more stringent than the Green Tariff Shared Renewables program under California Public Utilities Code Section 2831
- OR
- It is grid-connected, located at a site owned by the fuel producer, meets renewable electricity eligibility requirements under California Public Utilities Code Section 399.12 and produces no additional renewable attributes (such as renewable energy certificates)

Amendments in section 95488(b)(6)(G)

Hydrogen Amendments – Questions for Stakeholders

We are particularly interested in written feedback on:

- Making H₂ participation in the LCFS mandatory
- Giving priority to the station operator as initial regulated party under the LCFS
- Addition of useful lookup table pathways

Questions?

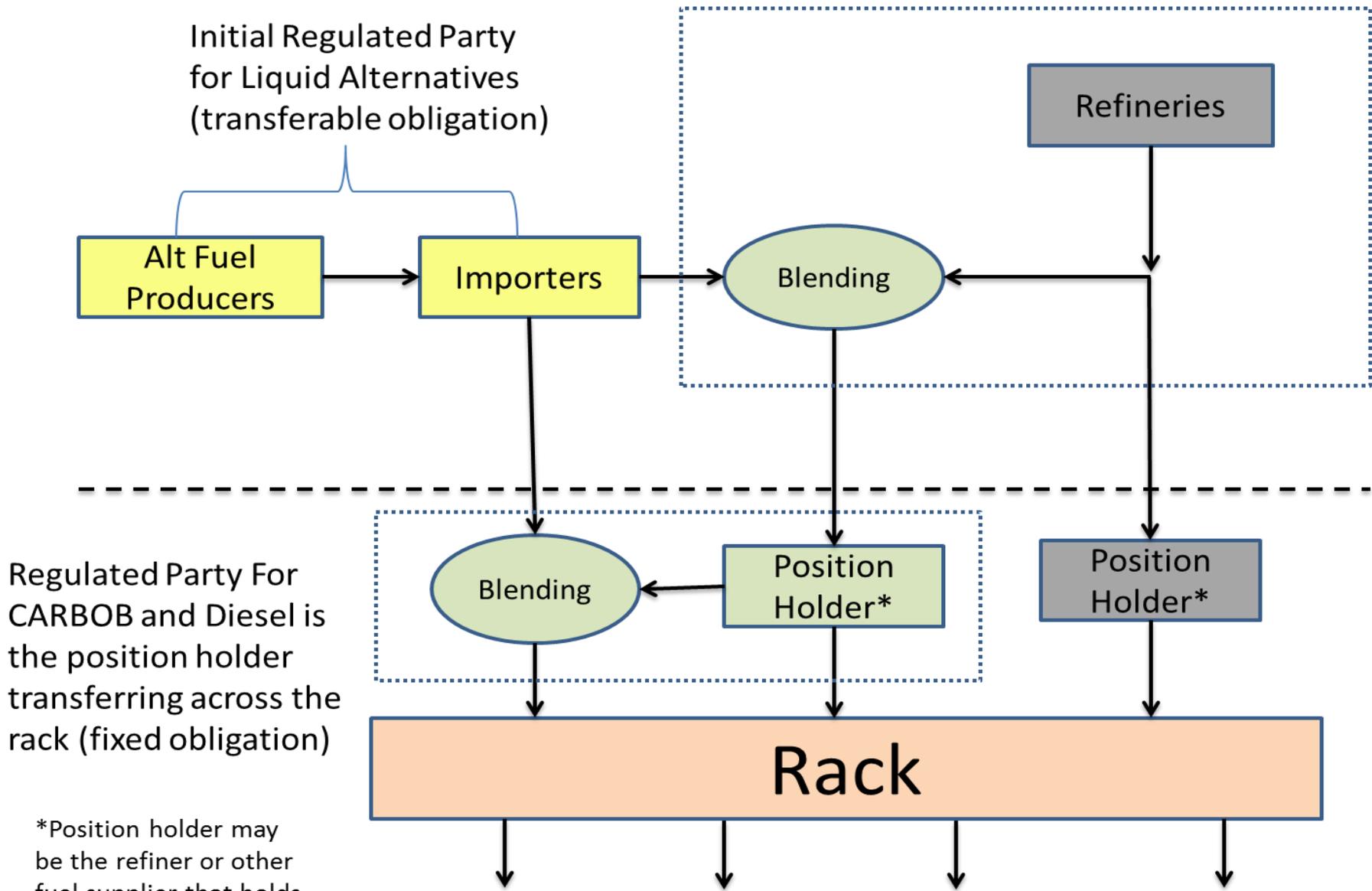
Feedback related to
proposed amendments for hydrogen
should be sent to LCFSWorkshop@arb.ca.gov
by June 16, 2016

Proposed Amendments to Petroleum

Point of Obligation for Petroleum Fuels

- Currently the initial regulated party is the refiner or importer, who is allowed to pass the obligation down to the “rack”
- Proposing to harmonize the regulated party for the LCFS and the reporting party under MRR for petroleum-based fuels
 - Usually, this will be the position holder at the rack
 - Would mean that LCFS compliance obligation cannot be passed on for CARBOB and Diesel
- Benefits:
 - Will require only one verification process under both regulations
 - Parties will submit the same data for annual reporting to both programs

Amendments in section 95483(a)-(c)



Regulated Party For CARBOB and Diesel is the position holder transferring across the rack (fixed obligation)

*Position holder may be the refiner or other fuel supplier that holds an inventory position at the terminal.

Innovative Crude

- Inconsistency exists between the innovative crude and the California average crude provisions, whereby:
 - Innovative crude credit may incent additional supply of high intensity crude to California refineries
 - May result in an increase in the California crude average CI and the assessment of incremental deficits on all California refineries
- Proposing that LCFS credit be limited for innovative crudes with a CI above the 2010 Baseline Crude Average CI
- The volume of crude receiving credit will be limited to the volume supplied during the 2010 baseline year

Amendments in section 95489(d)(5)(B)

Refinery and Tier 2 Projects using CCS

- Proposing that refinery investment and Tier 2 applications for projects employing carbon capture and sequestration:
 - Use a Board-approved quantification methodology including monitoring, reporting, verification, and permanence requirements associated with the carbon storage method
 - For projects involving delivery of carbon captured by the refiner or alternative fuel producer to a third party to store the carbon, both the refiner or alternative fuel producer and the third party must apply and will be considered joint applicants
- Draft quantification methodology is expected to be presented to the Board in 2017

Amendments in sections 95488(b)(2)(F)3 and 95489(f)(1)(H)

Proposed Amendments Know Your Customer

Know Your Customer check

Proposing implementation of a Know Your Customer check similar to that required under Cap and Trade

- All individuals registering with the LRT-CBTS system will be required to go through the “Know Your Customer” check
- Submission of identification documents is required to identify the users of the LRT-CBTS system
- Copy of a document submitted must be notarized by a notary public no more than three months before submittal
- The Executive Officer may re-check all documents required every two years

Amendments in sections 95483.2(e)

Questions?

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by June 16, 2016

Proposed Amendments to Pathway Processing

Overview – Proposed Amendments to Pathway Processing

- Documentation for pathway CI evaluation
- Elimination of separate Fuel Transport Mode (FTM) demonstration process
- Lookup Table (Table 6) FPCs
- CA-GREET 2.0 Model

Energy, Fuel, Feedstock, & Coproduct Documentation

Current rule requires applicants to submit invoices and receipts for:

- All forms of energy consumed in the fuel production process
- All feedstock purchases
- All fuel and co-products sales

Problem: Viewed as burdensome

Proposed Solution:

- Third-party validation of the same info required during initial pathway submission (discussed in more detail later today)
- Retain all relevant records for a period of 10 years and make them available to verifiers and/or ARB staff upon request

Eliminate Separate Check on Fuel Transport Mode (FTM)

Current rule requires:

- A one-time showing of FTM to demonstrate that a batch of fuel was brought to California using the mode specified in the pathway application
- Separate process, outside of pathway approval

Problems:

- Viewed as slightly duplicative to pathway certification process
- One-time check does not ensure further volumes are brought using the FTM matching the CI calculation in the pathway

Proposed solution:

- FTM folded into both initial third-party validation prior to pathway approval and ongoing verification prior to credit generation

Proposed Changes to Lookup Table

- Revised Fuel Pathway Codes (FPC) for Lookup Table pathways
- Addition of Fossil CNG to Lookup Table; approval will be similar to grid electricity pathway

Amendments in section 95488(c)(4)(F) Table 6.

Changes to CA-GREET 2.0

- No substantive changes to CI tools in this rulemaking
- Will be fixing a few broken links and incorrect cell designations, mostly in Tier 1 model
- Will be detailed when final draft is published

Amendments in section 95488(c)(4)(F)

Questions?

Feedback related to proposed amendments to pathway processing should be sent to LCFSWorkshop@arb.ca.gov by June 16, 2016

Overview – Proposed Amendments to Reporting

- Amendments for all reporting parties related to:
 - Credit transactions
 - Reporting deadlines
- Amendments for the following fuel providers:
 - Ethanol, Biodiesel (BD), and Renewable Diesel (RD)
 - Compressed Natural Gas (CNG)
 - Electricity
 - Hydrogen

Amendments for All Reporting Parties

Credit Transactions

- Proposal to shorten number of days to report credit transfers:
 - Seller must submit Credit Transfer Form (CTF) within 3 days (previously 10 days) of reaching agreement
 - Buyer must confirm the transaction within 3 days (previously 10 days) of reaching agreement
- A reason must be provided in CTF if a price paid per credit is not available, or if a zero value is reported
- Clarify price reporting for agreements involving future delivery of credits and multiple transfers
- Add credits pledged for the Credit Clearance Market (CCM) to the credit balance equation
- Delete unused provision regarding export of LCFS credits to other programs

Amendments in section 95487

Upload of Data for Reconciliation: Clarification of Deadline Applicability

- This deadline only applies to entities that need to reconcile with counterparties because they perform the following transactions:
 - purchased with obligation,
 - purchased without obligation,
 - sold with obligation, and
 - sold without obligation
- The data for the quarterly reports must be uploaded in the LRT-CBTS within the first 45 days after the end of the quarter

Amendments in section 95491(a)(1)

Amendments for Providers of Alternative Fuels

Alternative Fuel Export

- Concept discussed in March 8th Workshop [Regulatory Guidance # 16-01]*
- To keep balance of credits, the exporting party is obligated to report the exported volume under the transaction type “export” in LRT-CBTS and must retire credits equivalent for the volume exported

Amendments in section 95488(d)(3)

* Available at http://www.arb.ca.gov/fuels/lcfs/guidance/regguidance_16-01.pdf

Substitute FPCs (CI Values)

- Concept discussed in March 8th Workshop [Regulatory Guidance # 16-01]
- Can only be used when FPC is not available for ethanol, biodiesel, and renewable diesel
- Only applicable for the following transaction types in LRT-CBTS :
 - sold without obligation
 - purchased without obligation
 - export
 - loss of inventory
 - not used for transportation

Amendments in section 95488(d)(3)

Proposed Substitute FPCs (cont'd)

Fuel	Substitute FPC	CI
Ethanol	ETH0116	40
Biodiesel	BIOD0116	15
Renewable Diesel	RNWD0116	30

Amendments in section 95488(d)(3)

Amendments for Electricity, Hydrogen, CNG Providers

Electricity, Hydrogen, Fossil CNG Reporting Parties

- For the following fuels, allow the credit generator with the first right of refusal the option to contractually designate a third party (aggregator) to generate credits on their behalf:
 - Fossil CNG
 - Electricity
 - Hydrogen

Amendments in section 95483(d),(e) and (f)

Natural Gas Amendments

- Propose to require North American Natural Gas applicants to provide a list of CNG stations in AFP, including:
 - Meter unique ID, physical address, and geographical coordinates
- The list of CNG stations would be updated quarterly
- Clarify requirement to report quarterly fuel sales volumes **for each station**

Amendments in section 95488(c)(4)(D)

Reporting Units for CNG & L-CNG

- Reporting in standard cubic feet (scf) and conversion from lbs to scf no longer required, instead:
 - the amount of fuel dispensed at fast fill stations must be reported in gasoline gallon equivalent (GGE)
 - the amount of fuel dispensed at time (slow) fill stations must be reported in Therms as shown on utility bills

Electricity Amendments

- Propose California Average Grid Electricity applicants be required to submit a list of EV charging stations in AFP, including:
 - The station name, a number of charging ports, physical address, and geographical coordinates
- The list of charging stations would be updated quarterly
- Clarify requirement to report quarterly fuel dispensed **for each station**

Amendments in section 95488(c)(4)(D)

- Allow forklifts to use regular credit equation to generate credits

Amendments in section 95486(b)(3)(D)

Hydrogen Amendments

- Propose that Hydrogen applicants be required to submit a list of fueling stations in AFP, including:
 - The station name, a number of pumps at each dispensing pressure, physical address, and geographical coordinates
- Source and quantity of any renewable energy input(s) to hydrogen production
- List of fueling stations would be updated quarterly

Amendments in section 95488(c)(4)(D)

Questions?

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proposed amendments to reporting should be
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by June 16, 2016

Feedback

Feedback related to these proposed regulatory amendments should be sent at LCFSWorkshop@arb.ca.gov
Feedback requested by: June 16, 2016

Presentation available at:
http://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/lcfs_meetings.htm