



Low Carbon Fuel Standard

Traceability and Carbon Intensity Verification for
Exports to the California Market

ISCC Technical Stakeholder Meeting July 2, 2019 Shanghai
Waste, Residues, and Advanced Low Carbon Fuels

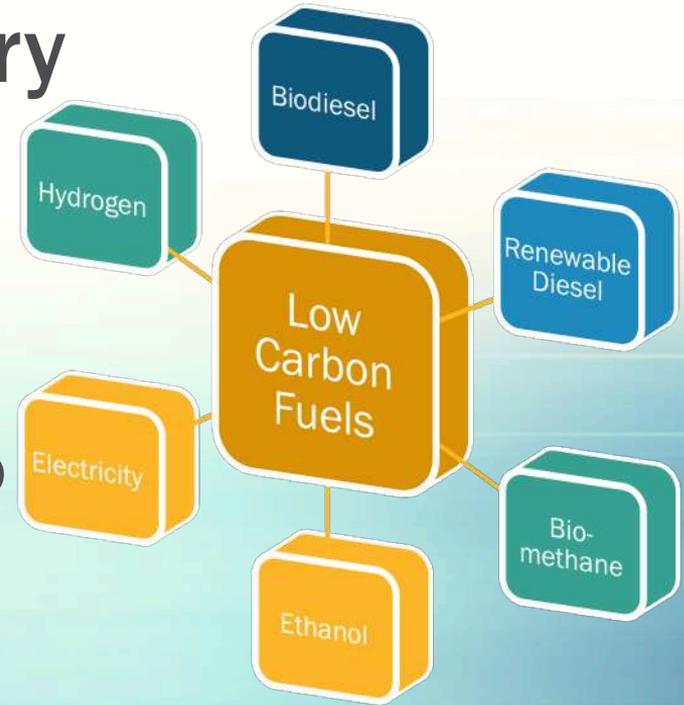
Presentation Outline

- Overview of LCFS Program
- LCFS Verification Program Requirements
- Specified Source Feedstocks and Chain of Custody Requirements
- Fuel Pathway Allocation Methods

Low Carbon Fuel Standard Regulation: <https://arb.ca.gov/fuels/lcfs/lcfs.htm>

LCFS History

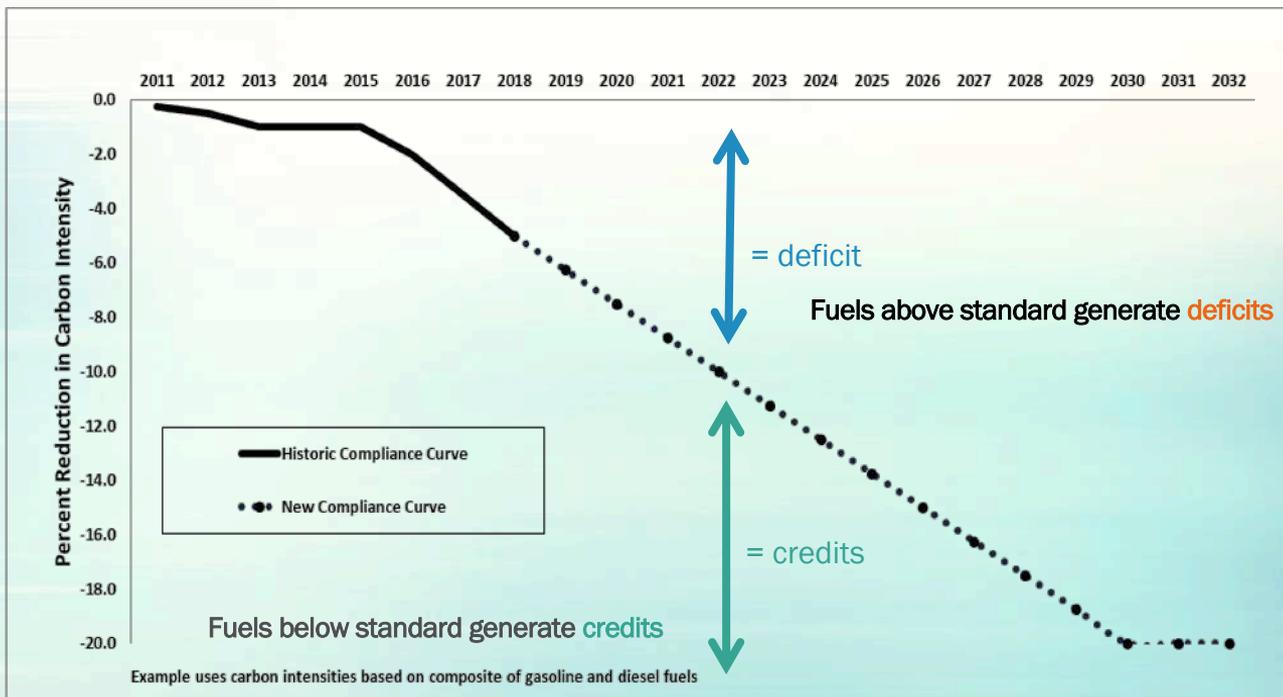
- Key Milestones:
 - Original adoption in 2009, amended in 2011, re-adopted in 2015, amended in 2018
- Goal: Reduce carbon intensity (CI) of transportation fuel pool by at least 20% by 2030
- Expected benefits:
 - Complement other AB 32 measures
 - Transform and diversify fuel pool
 - Reduce petroleum dependency
 - Reduce emissions of other air pollutants



Basic LCFS Requirements

- Sets annual carbon intensity (CI) standards, or benchmarks, for gasoline, diesel, and the fuels that replace them
- CI is the measure of GHG emissions associated with producing, distributing, and consuming a fuel, which is measured in grams of carbon dioxide equivalent per megajoule ($\text{gCO}_2\text{e/MJ}$)
- CI based on complete life cycle analysis

Declining Carbon Intensity Curve



Program continues with a 20% CI target post 2030

Status of the LCFS

- Low carbon fuel use is increasing, and fuel producers are taking action to decrease carbon intensity
- Established market for credit transactions with the total value exceeding \$2 billion in 2018
- The LCFS Data Dashboard contains current and historical LCFS program data
 - Volume of fuels and credits generated
 - Percent reduction in carbon intensity
 - Average credit prices and credit volumes transacted



LCFS Verification Program

- Ensures data reported to, and used by, CARB is accurate and conforms to the regulatory requirements
 - Consistent with the verification programs implemented under CARB's Cap-and-Trade Program
- Provides confidence and reliability in reported data for stakeholders, market participants and the public
 - LCFS data have financial implications and must meet a specified level of rigor
- International best practice
 - Based on ISO 14064-3 and 14065
 - Considered a requirement for carbon pricing mechanisms internationally
- Provides a systematic, independent and documented process for evaluation of reported data against the LCFS regulatory requirements and methods for calculation

CARB as an Accreditation Body

- CARB accredits third-party verifiers (individuals)
 - Must take CARB general verification training and pass an exam
 - May become accredited as lead verifiers and in specific sectors
 - Fast-track for firms and individuals auditing fuels in complementary programs (U.S. EPA RFS, including QAP)
- CARB accredits third-party verification bodies
 - Staffing requirements
 - Insurance requirements
 - Responsible for conflict of interest requirements
- Managing accreditation allows CARB to have full oversight of verification body (VB) quality including:
 - Training and exam administration
 - Audits of individual verifications (including site audits) and audits of VB management systems
 - Ensuring any nonconformances or other issues are addressed appropriately

Verification Implementation Timing

Verification is phased in:

- 2019—Verifiers apply for CARB accreditation and take required training and exam(s)
- 2020—Alternative fuel pathway applications require validation by a third-party verifier prior to CARB certification of carbon intensities
- 2021—Annual verification of operational carbon intensities and alternative fuel quantities required for 2020 data reports to assure accuracy of CARB’s fuel-based credit calculations

Specified Source Feedstocks: Wastes & Residues

- Non-primary products of commercial or industrial processes for food, fuel or other consumer products (e.g., used cooking oil, animal fat, distiller's corn oil) which are used as feedstocks in pathways for biodiesel, renewable diesel, alternative jet fuel, and co-processed refinery products
- Require chain of custody evidence to be eligible for a reduced CI
- The entity must maintain evidence demonstrating chain of custody from the point of origin along the supply chain to the fuel production facility
 - Delivery records that show shipments of feedstock type and quantity directly from the point of origin to the fuel production facility, or
 - Information from material balance or energy balance systems that control and record the assignment of input characteristics to output quantities at relevant points along the feedstock supply chain between the point of origin and the fuel production facility

Verification of Specified Source Feedstocks

- Specified source feedstocks, including wastes and residues, require third-party verification
- The verification team may conduct a desk review or site visit for any entity in the feedstock chain of custody
 - Review must include an evaluation of the need to trace feedstock through feedstock suppliers, including aggregators, storage or pretreatment facilities, and traders or brokers, to the point of origin
 - If feedstock cannot be traced back to point of origin, it is not eligible to support lower carbon fuel quantities reported under the associated pathway and reports must be corrected

Fuel Pathway Allocation Methods

- When multiple feedstocks are processed simultaneously, different carbon intensities may be assigned to portions of fuel produced—i.e., “fuel pathway allocation”
 - The entity must associate each portion of the total fuel produced with a feedstock during each reporting period (calendar quarter) and consider total mass balance of all feedstocks processed at the facility
 - If an entity would like to use a different allocation methodology than the one specified in the Regulation in section 95491(d)(1)(C), CARB must review and approve the methodology
 - A description of the method must be included in the monitoring plan for verifier review

Verification of Fuel Pathway Allocation Methods

- LCFS verification will include a review of feedstock acquisition and fuel production regardless of final market to assure no double counting of feedstock attributes
- Verifiers will use the fuel pathway allocation methodology described in the monitoring plan to test conformance with this requirement using source records, such as feedstock invoices and fuel sales receipts, to determine the amount of fuel eligible to be reported for a given pathway in the quarterly reporting period



THANK YOU

Renée Lawver, Manager LCFS Verification

Email: renee.lawver@arb.ca.gov

U.S. Tel: 916.322.7062