ISCC Regional Stakeholder Meeting
September 29, 2016

California Low Carbon Fuel Standard and Verification Opportunities
Topics of Today’s Discussion

- LCFS Background
- Fuel Carbon Intensity
- LCFS Sustainability
- LCFS Verification
- Opportunity for ISCC Participation
- Next Steps
Low Carbon Fuel Standard (LCFS) Background

• Early action item under California Assembly Bill 32 (Nunes)

• Original adoption in 2009, amended in 2011, re-adopted in 2015

• Goal: Reduce carbon intensity of transportation fuel pool by at least 10% by 2020

• Expected benefits:
  • Complement other AB 32 measures
  • Transform and diversify fuel pool
  • Reduce petroleum dependency
  • Reduce emissions of other air pollutants
LCFS “Currency” is Fuel Carbon Intensity (CI)

• Fuel CI derived from GHG lifecycle assessment of fuels; expressed as gCO2e/MJ

• CI values calculated using the CA. Greenhouse Gas, Regulated Emissions, and Energy Use In Transportation model (Ca-GREET)

• Ca-GREET results rely on accurate and verifiable inputs for each fuel pathway

• CI Examples:
  • Gasoline 98 gCO2e/MJ
  • Diesel 102 gCO2e/MJ
  • Biodiesel 9 to 57 gCO2e/MJ
  • Ethanol 7 to 85 gCO2e/MJ
  • Natural Gas -275 to 85 gCO2e/MJ

• Amount of LCFS credits based on approved CI and fuel volume sold
  • One LCFS credit = 1 MT CO2e
Fuel Lifecycle for Used Cooking Oil Biodiesel

Biogenic CO₂ Emissions: 1 g/MJ

Other Tailpipe Emissions: 1 g/MJ

Oil Filtration/Rendering: 5 g/MJ

Transport: 2 g/MJ

Biorefining: 15 g/MJ

Diesel Cars/Trucks: 2 g/MJ

Used Cooking Oil Biodiesel: 26 gCO₂e/MJ*

* Totals may not sum due to rounding

Other Tailpipe Emissions: 1 g/MJ

* Totals may not sum due to rounding.
LCFS Carbon Accounting System

Fuels above standard generate deficits

Fuels below standard generate credits

\[ x \downarrow = \text{deficit} \]

\[ x \uparrow = \text{credits} \]
LCFS Sustainability

• 2009 Board resolution directed staff to evaluate sustainability

• A sustainability working group was formed in 2010

• ARB hosted 20+ meetings over 3 years

• Conclusion: Development of LCFS sustainability standards are challenging given the need for a broader policy context, and requires collaboration with other State agencies that also evaluate sustainability issues
ARB Focusing on Harmonization Opportunities

Sustainability Spectrum

Environmental
- Soil
- Water Quality
- Biodiversity
- Traceability
- Chemical Use
- Waste Mgt
- GHG Emissions

Social
- Human Rights
- Labor Rights
- Welfare of Surrounding Communities

Economic
- Required Changes
  Must Be Feasible
  to Protect Local
  Economic Opportunity

400 nm
700 nm

Gamma
Microwave
Radio waves

Upstream Energy Production
Upstream Chemical Production
Feedstock Production
Feedstock Transport
Fuel Production
Fuel Transport
Fuel Use in a Vehicle
Need for LCFS Verification

• Concern over potential LCFS market fraud

• Several LCFS fuel providers located outside of California and the U.S.

• ARB staff currently developing an LCFS verification program that will validate and verify Ca-GREET input factors such as feedstocks, energy use, fuel transport mode and production co-products

• Staff are currently evaluating ISCC certifications to assess how it may complement the verification of biofuel carbon intensity, in particular feedstock supply chains
Highlights of Current LCFS Verification Proposal

• Governance: ARB accredited Verifying Bodies

• Both fuel carbon intensity and fuel transactions subject to periodic verification

• Biofuel fuel lifecycle subject to audits
  • Initial vetting of data associated with CI calculation
  • Ongoing verification to ensure consistency with approved CI

• Biofuel producers to maintain monitoring plans to describe verification audit points and high risk areas

• Verifying Bodies to develop per facility audit plans based on risk assessment and established sampling procedures

• Successful verification audits allow biofuel producers to generate LCFS credits
Example: Used Cooking Oil Supply Chain

Declarations from Restaurants

Traceability Certificate Issued

Traceability Certificate Amended

Restaurant → Collection & Transport → First Gathering Point → Transport → Renderer → Transport → Conversion Plant → Purchase by LCFS RP
Opportunity for ISCC Stakeholders’ Participation

• Encourage interested parties to engage in ARB’s verification rulemaking process

• Sign up at our email listserv at, https://www.arb.ca.gov/listserv/listserv_ind.php?listname=lcf

• For more information, see materials from previous public workshops at, https://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/lcfs_meetings.htm
Next Steps

• Currently evaluating feedback from last public workshop held on July 29th

• Planning next public workshop in late October 2016

• Staff concept paper on verification to be released prior to October workshop

• Get involved!
Thank you, Any Questions?

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