

Public Workshop on the Commercialization of New Alternative Diesel Fuels



California Air Resources Board
Stationary Source Division
Alternative Fuels Branch

April 17, 2014



Workshop Agenda

- ADF Rulemaking in Perspective
- Current Staff Proposal
- Next Steps
- Discussion

ADF Rulemaking in Perspective

- Low Carbon Fuel Standard (LCFS) incentivizes alternative diesel fuels (ADFs)
- Rulemaking creates standardized process for commercialization of new ADFs while ensuring environmental protections
- ADFs include biodiesel and other emerging diesel fuels
- Rulemaking limits NOx impacts of biodiesel use in CA

ADF Rulemaking Chronology

- October 2013 – Staff report released on ADF Regulation
- December 2013 – Board hearing delayed due to stakeholder input
- February 2013 – Workshop; expected March Board Hearing
- March 2014 – Rulemaking officially canceled
- April 2014 – Workshop on updated proposal

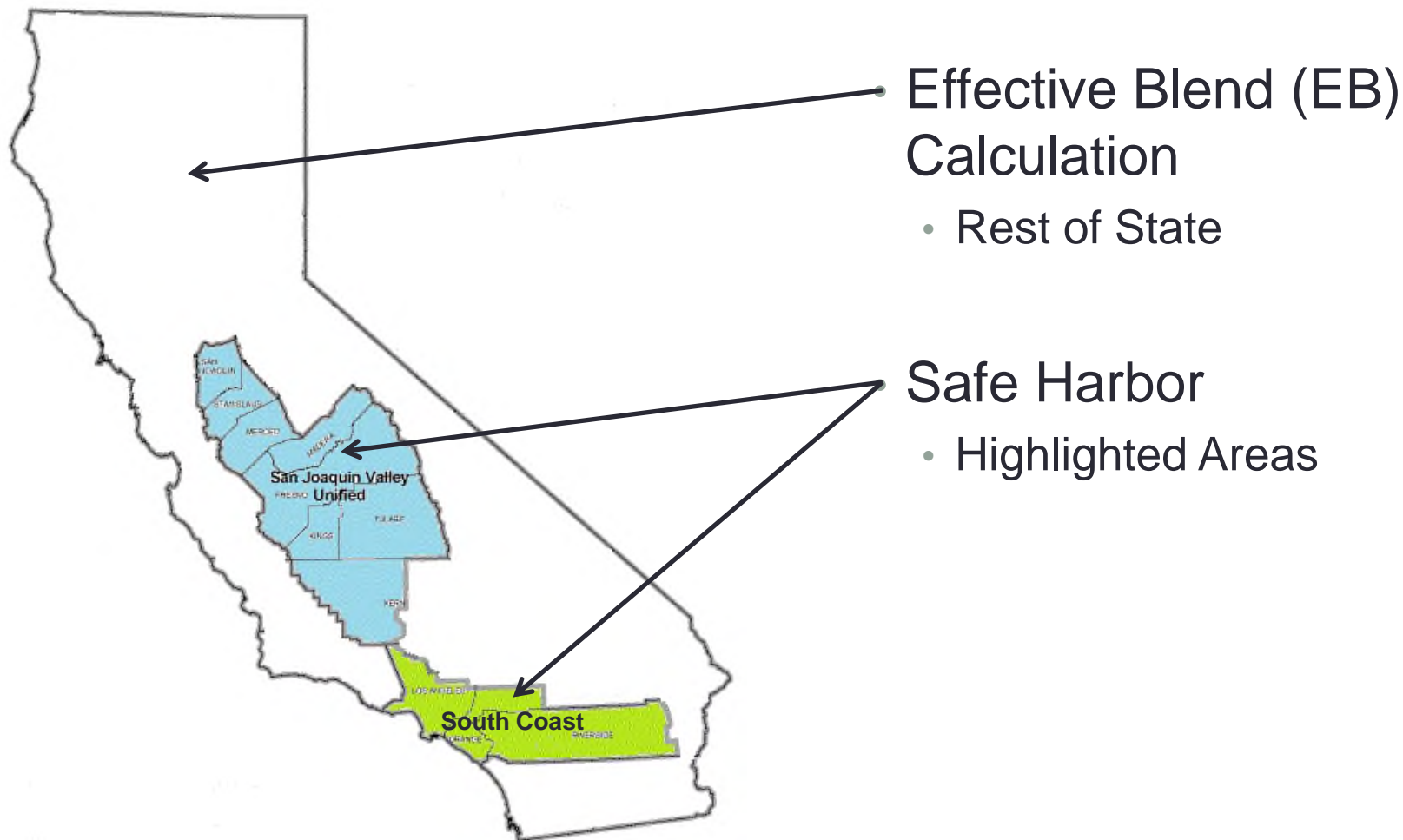
Recap From February 13th Workshop

- Proposed conceptual approach based on effective blend level applied at biodiesel producer level
- Received numerous comments indicating approach was too complex and not practical to implement
- Prompted staff to reconsider approach

Current Staff Proposal

- 3-stage process for commercialization of new alternative diesel fuels
 - Stage 1: Pilot stage
 - Stage 2: Fuel specification development
 - Stage 3A: Commercial sales with significance threshold
 - Stage 3B: Commercial sales with no significance threshold
- Biodiesel as Stage 3A ADF with B10 significance threshold

Biodiesel - Two NOx Control Regimes



NOx Control via EB Calculation

- Aggregate calculation applies only to **non-extreme** ozone areas
 - B9.5 mitigation trigger to avoid NOx increase expected at B10
 - Recognizes NOx benefits from renewable diesel, low-NOx diesel
 - Accounts for lower NOx animal based feedstock
 - Updated factors in calculation

$$EB = 100 \times \left[\frac{NBV - 0.25LN - 0.36RD - VM - 0.55AB}{NCV} \right]$$

EB – Effective Blend

NBV – Total biodiesel volume minus biodiesel used in B5

NCV – Total diesel minus diesel used in B5

LN – Low-NOx Diesel

RD – Renewable Diesel

VM – Voluntary Mitigation

AB – Animal Biodiesel

NO_x Control via EB Calculation (cont'd)

$$EB = 100 \times \left[\frac{NBV - 0.25LN - 0.36RD - VM - 0.55AB}{NCV} \right]$$

- EmFAC 2011 model used to apportion NCV for non-extreme ozone areas based on Vehicle miles travelled
- NCV to be adjusted to account for use of B9.5
- LN, RD, VM and AB volumes used in non-extreme ozone areas

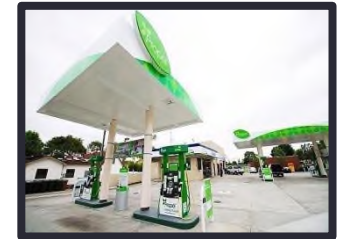
NOx Control via “Safe Harbor” Provisions

- Extreme ozone non-attainment areas (South Coast and San Joaquin) warrant contemporaneous controls
- No EB calculation
- “Safe Harbor Fuel” = B100 sold for blending B9.5 or below
- Per gallon NOx mitigation required for blends sold above B9.5
- Mitigation options include:
 - Blending with renewable diesel or Low-NOx diesel
 - Use NOx reducing additives
 - Contracts to provide contemporaneous use of RD
- Mitigation level adjusted by feedstock: animal or soy

Biodiesel as Stage 3A ADF- Regulated Parties

- Biodiesel producers/importers
 - B100 sold as “Safe Harbor” or mitigated for downstream
 - May sell biodiesel into extreme and non-extreme ozone areas
- Blenders
 - Responsible for blending Safe Harbor fuel at B9.5 or below
 - May also mitigate blends above B9.5
- Distributors
 - Do not affect blend formulations
 - Deliver legal fuels to downstream facilities
- Retailers
 - May also mitigate blends using renewable or Low-NOx diesel contracts
 - Certain exemptions for light/medium duty fleets

Extreme Areas: Safe Harbor Fuel; Retailed at B9.5



Producer

Recordkeeping

- B100 volume

Product Transfer Doc

- Safe harbor B100

Blender

Recordkeeping

- PTD for Safe Harbor B100 from Producer
- Volumes by blend level

Product Transfer Doc

- Safe Harbor B9.5

Distributor

Recordkeeping

- PTD for Safe Harbor B9.5 from Blender

Product Transfer Doc

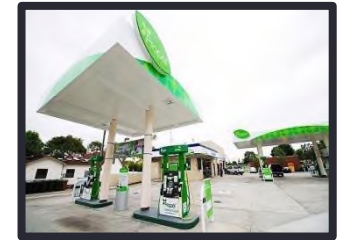
- Safe Harbor B9.5

Retailer

Recordkeeping

- PTD for Safe Harbor B9.5 from Distributor

Extreme Areas: Producer Mitigated Biodiesel; Retailed at B20



Producer

Recordkeeping

- B100 volume
- Mitigation method/records

Reporting

- Monthly reporting

Product Transfer Doc

- **Mitigated B100**

Blender

Recordkeeping

- PTD for Mitigated B100 from Producer
- Volumes by blend level

Reporting

- Monthly reporting

Product Transfer Doc

- **Mitigated B20**

Distributor

Recordkeeping

- PTD for Mitigated B20 from Blender

Product Transfer Doc

- **Mitigated B20**

Retailer

Recordkeeping

- PTD for **Mitigated B20** from Distributor

Extreme Areas: Blender Mitigated Biodiesel; Retailed at B20



Producer

Recordkeeping

- B100 volume

Reporting

- Monthly reporting

Product Transfer Doc

- Safe Harbor B100



Blender

Recordkeeping

- PTD for Safe Harbor B100 from Producer
- Volumes by blend level
- Mitigation method/records

Reporting

- Monthly reporting

Product Transfer Doc

- **Mitigated B20**



Distributor

Recordkeeping

- PTD for Mitigated B20 from blender

Product Transfer Doc

- **Mitigated B20**



Retailer

Recordkeeping

- PTD for **Mitigated B20** from Distributor

Extreme Areas: Retailer Mitigated Biodiesel; Retailed at B20



Producer

Recordkeeping

- B100 volume

Reporting

- Monthly reporting

Product Transfer Doc

- Safe Harbor B100



Blender

Recordkeeping

- PTD for Safe Harbor B100 from Producer
- Volumes by blend level

Reporting

- Monthly reporting

Product Transfer Doc

- Unmitigated B20



Distributor

Recordkeeping

- PTD for Unmitigated B20 from Blender

Product Transfer Doc

- Unmitigated B20



Retailer

Recordkeeping

- PTD for Unmitigated B20 from Distributor – exempt
- Concurrent RD sales or per gallon mitigation

Reporting

- Monthly reporting

Reporting and Recordkeeping

- Monthly Reporting required for all parties involved in mitigating Biodiesel.
 - All Producers
 - Blenders who mitigate
 - Retailers who mitigate
- All parties must keep records of any transaction involving biodiesel, including info on mitigation status and blend level

Recordkeeping, Reporting

- Records to be maintained:
 - Volume and blend level of Biodiesel sold
 - Mitigation status of all volumes sold, safe harbor or mitigated
 - Method of mitigation of all volumes sold
- Items that need to be reported:
 - Volumes of safe harbor biodiesel produced/imported
 - Volumes of mitigated biodiesel produced/imported and method of mitigation
 - Volumes of safe harbor biodiesel mitigated further downstream
 - Volumes of RD contracted (reported by both provider of RD and purchaser of RD contract)

Exemptions

- Fleets composed of ≥ 95 percent LDV, MDV, or NTDE
- Retailers supplying ≥ 95 percent LDV, MDV, or NTDE
- Fleets operating under a DMS Variance

Fleet/Retailer Exemptions

- Administrative process to manage exemption
- Application
 - Fleet information
 - Biodiesel volumes and blend levels
 - Demonstration that 95% of fleet is light/medium duty (survey information) or NTDE
 - Fuel testing
- Staff review process
- Executive Order issued to approve retailer exemptions

Suggestions From Previous Workshop

- Clarifications
 - Engine manufacturer approval of ADFs
- Revise definitions
 - Biodiesel blend, hydrocarbon, significance level, supplier
- Technical correction to statewide effective blend equation
 - Adjust TCV term
- Format corrections
 - Missing section heading

Ongoing CARB Biodiesel Study

Objective: To determine whether B5 and B10 have increases in NOx

Fuels: B5 and B10

Feedstocks: Animal and Soy

Engines: 1991 DDC series 60; 2006 Cummins ISM

Test cycles: UDDS, FTP, and SET

Results of study will be incorporated in rulemaking

Next Steps

- May 8, 2014 – Workshop feedback due
- Evaluate:
 - Data from ongoing biodiesel study
 - Additives
 - Effect on fuel oxidation stability
 - How to handle contracts

Contact Information

Alexander “Lex” Mitchell

Air Pollution Specialist

(916) 327-1513

amitchel@arb.ca.gov

Jim Aguila, Manager

Substance Evaluation Section

(916) 322-8283

jaguila@arb.ca.gov

Alternative Diesel Fuel Website:

<http://www.arb.ca.gov/fuels/diesel/altdiesel/biodiesel.htm>

Discussion

Thank You