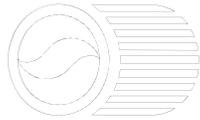


California Environmental Protection Agency



Air Resources Board

Lifecycle Assessment of Crude Oil Production within the LOW CARBON FUEL STANDARD

**Public Meeting
March 19, 2012**

Disclaimer

- The purpose of this meeting is to discuss the status of the methodology for determining the carbon intensity of crude oil.
- Comments made at or in response to this meeting will not be entered into the rulemaking record.

Overview

- Review of Crude Oil Provision Amendment
- Introduction to OPGEE – Adam Brandt, Ph.D.
(contractor, Stanford University)
- “Innovative Methods” Section 95486(b)(2)(A)3
 - Criteria for innovative methods
 - Methods considered innovative
- Next Steps

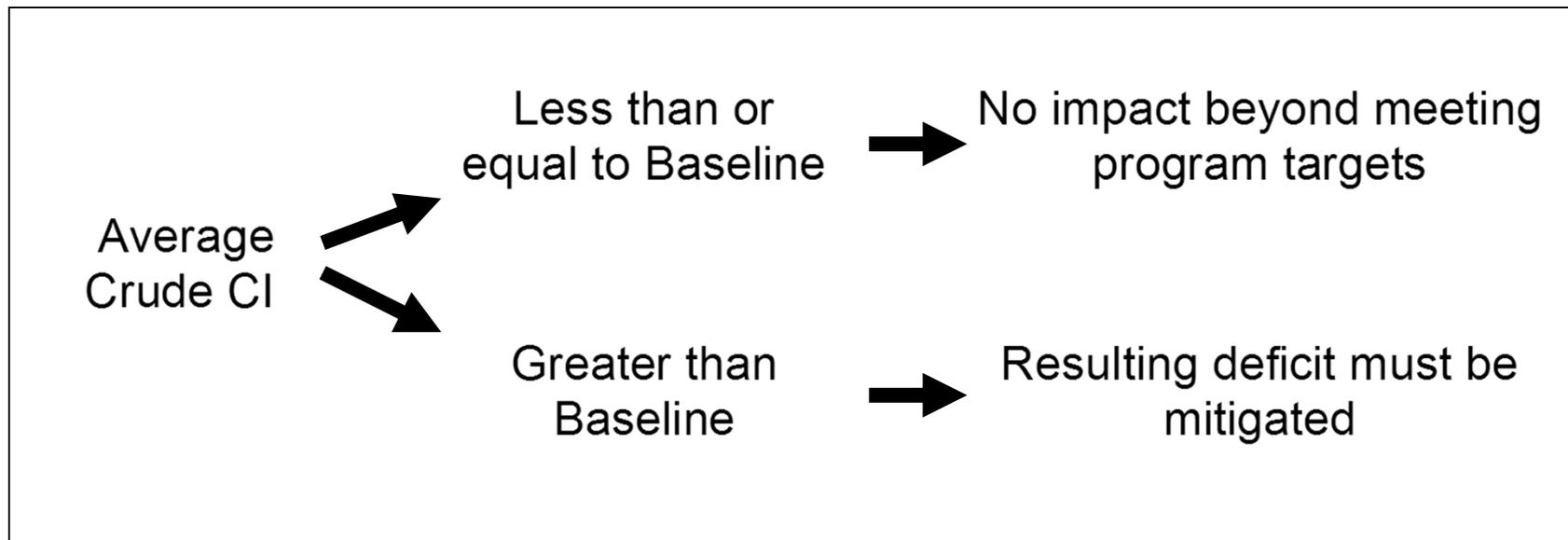
December 2011 Board Hearing

- Board approved with modifications proposed amendments to the LCFS Regulation
- Amendments include a complete revision to the treatment of crude oil
 - Replace the original CA Basket and HCICO provision with the CA Average approach
 - Include an “innovative method” credit provision

Approved Crude Oil Provision: California Average

- CA Average Approach begins 2013
- Calculates State average CI each year

Basic Approach



Approved Crude Oil Provision: California Average

- Preserves program benefits
- Ensures consistent treatment of all crudes
- Improves accounting of GHG emissions from production and transport of crude oil
- Promotes innovation
- Avoids/limits incentives to shuffle crude

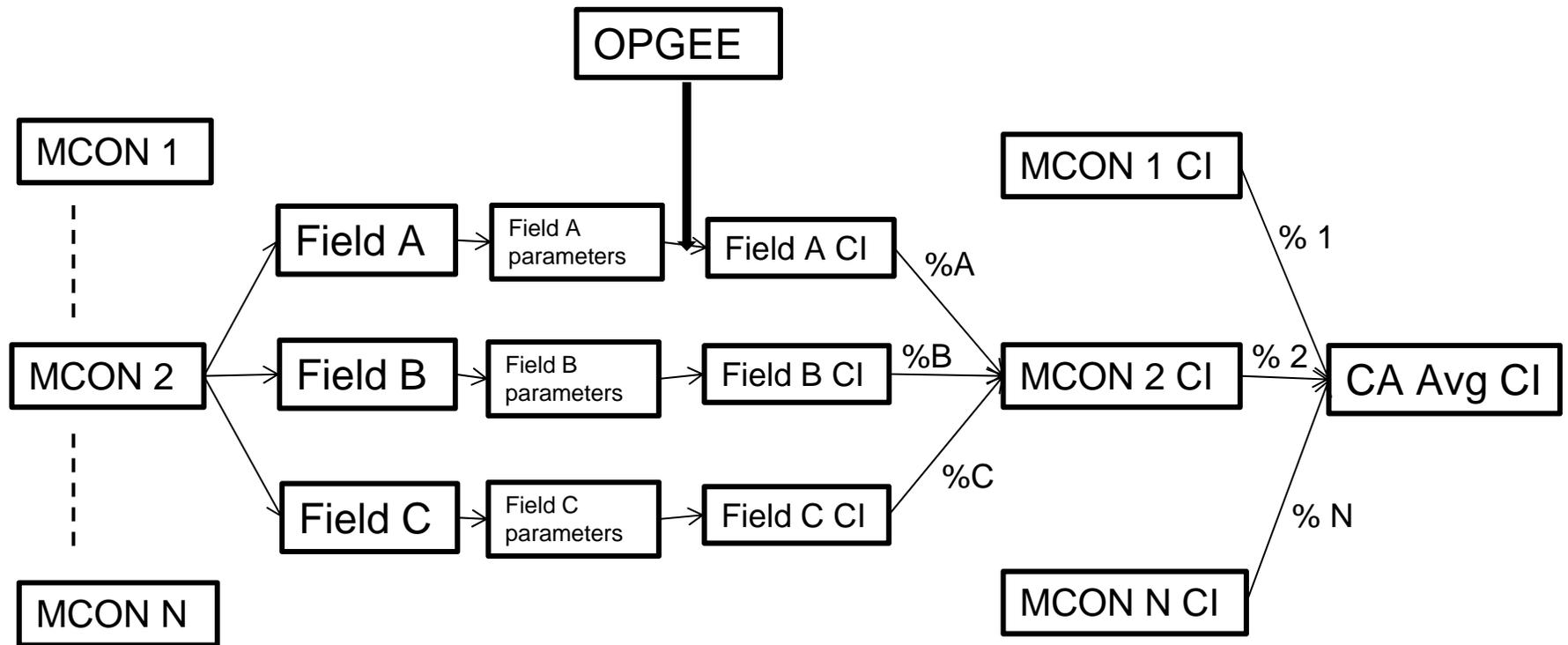
Crude Oil Carbon Intensity Determination

- Contract with Adam Brandt to develop a LCA tool for crude recovery and transport.
- Oil Production Greenhouse Gas Emissions Estimator or OPGEE will replace the calculation for crude production and transport CI in CA-GREET
- Update to a 2010 Baseline as part of a 15-day change this summer
- Starting in 2013, OPGEE will also be used to calculate the yearly Crude Average CI value.

Oil Production Greenhouse Gas Emissions Estimator (OPGEE)

Adam Brandt and Hassan El-Houjeiri
Stanford University

CA Crude Average Carbon Intensity



Data for Calculating Crude Carbon Intensity

- Pursuing various sources of data for MCONs and field production parameters
- Welcome stakeholder input on
 - Percentage of MCON supplied from each field
 - Field-specific production parameters for OPGEE
- Conservative defaults will be used for MCONs for which good data are not available.

Section 95486(b)(2)(A)3

Credit allowed for crudes produced using innovative methods

- Verified CCS or other methods approved by the Executive Officer
- Implemented during or after 2010
- CI reduction of 5.0 g/MJ or greater

ARB staff is inviting stakeholder input on:

- Criteria for determining what technologies will be considered innovative
- Technologies that stakeholders believe should be considered innovative

Next Steps - OPGEE

- Complete OPGEE and model documentation
- Review stakeholder comments and revise OPGEE as necessary
- Use OPGEE to estimate CI values for 2010 MCONs and calculate 2010 Baseline Crude CI
- Hold a workshop to discuss CI calculations
- Release OPGEE, documentation, 2010 Baseline calculations, and updated Compliance Schedule targets as part of 15-day change

Next Steps - Section 95486(b)(2)(A)3

- Evaluate stakeholder comments on criteria for determining what methods will be considered innovative
- Evaluate stakeholder comments on technologies that may be “innovative methods”
- Include revisions as part of 15-day change

Contact Information

- All comments should be addressed to:
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