

Low Carbon Fuel – Outline of Model Rule
Version for subgroup input
February 11, 2010

1. **Key Definitions and Acronyms**

Definitions of key terms to ensure clarity.

- a) Key Definitions
 - i) Alternative fuel
 - ii) Biobased Diesel
 - iii) Renewable Diesel
 - iv) Biogas
 - v) Carbon intensity
 - vi) Importer
 - vii) Import facility
 - viii) Lifecycle greenhouse gas emissions
 - ix) Regulated party
 - x) Transportation fuel
- b) Key Acronyms
 - i) Listing of acronyms contained in the draft model rule

Questions for all advisory group members

- What existing definitions that currently exist in statute or regulation should be applied to this draft model rule? Please provide definition comments that will be consistent with existing definitions.

2. **Applicability**

This section will determine the types of transportation fuels to be regulated under the LCFS.

- a) Fuels
Applies to the list of transportation fuels below that are, sold, supplied or offered for sale in the state, but are not limited to the following:
 - i) Gasoline
 - ii) Reformulated Gasoline
 - iii) Diesel Fuel
 - iv) Electricity
 - v) Compressed Natural Gas [CNG] or Liquefied Natural Gas [LNG]
 - vi) Biogas CNG or Biogas LNG
 - vii) Compressed or Liquefied Hydrogen [H]
 - viii) Fuel Blend Containing H
 - ix) Ethanol
 - x) Biobased Diesel
 - xi) Renewable Diesel
 - xii) Denatured Fuel Ethanol [E100]
 - xiii) Neat Biomass Based Diesel [B100]

Questions for all advisory group members

Comment [ab1]: The model rule subgroup will be responsible for finalizing the list of definitions and determining language for each key definition. AG feedback on this section is welcome.

Comment [ab2]: The model rule subgroup will be responsible for finalizing the list of fuels included in the model rule. AG feedback on this section is welcome.

- Are there additional fuels not included in this list that should be added?
- Are there fuels currently on this list that should be removed?
- Do we need to add an additional clause for “any other liquid or non-liquid fuel? Would this be problematic?
- Should electricity produced for use in electric vehicles be presumed to comply? How would you track the electricity produced that is only for use by EVs? Should there be a drive-train efficiency adjustment factor similar to the CARB regulation?

b) Fuels Presumed to Comply

Each of the following alternative fuels is presumed to have a full fuel-cycle, carbon intensity that meets the compliance schedule.

- List of Fuels Presumed to Comply (**EXAMPLE LIST**)
 - Electricity using energy economy ratio (EER)
 - Hydrogen
 - Hydrogen Blends
 - Fossil CNG from North American Sources
 - Biogas CNG and
 - Biogas LNG
 - Provision to be determined to add new fuels that come into the market after the draft model rule is developed.
- Producers and importers of fuels listed above can opt-into trading and banking program to generate credits. However, they must comply with all of the reporting requirements

Questions for all advisory group members

- Are there other fuels not currently available, but anticipated to be available in the market, not included in this list?

c) Exemptions for Specific Fuels (**EXAMPLE LIST**)

- Is not a biomass fuel and is not supplied in quantities greater than amount to be determined per year
- Liquefied Petroleum Gas [LPG or “propane”]

Comment [b3]: Possibly exempt, because not used as a motor fuel.

Questions for all advisory group members

- Are there other specific fuels that should be exempted from the regulation?
- Should a different measurement be used for determining a small fuel producer?

d) Exemptions for Specific Applications-this section exempts transportation fuels used in the following applications.

(**EXAMPLE LIST**)

- Aircraft
- Racing vehicles
- Military tactical vehicles

- iv) Locomotives
- v) Ocean-going or Great Lakes vessels not including recreational and commercial harbor craft vessel

Questions for all advisory group members

- Are there other specific applications that should be exempted?
- Are there currently listed applications that should not be exempted?

e) Opt-in (**EXAMPLE LIST**)

- i) Allow exempt small producers and importers to opt-in to the trading program. They must meet all of the compliance and reporting requirements
- ii) Allow producers or importers of exempt fuels to opt-into the trading program.

Questions for all advisory group members

- Are there any additional exemption provisions that should be included?
- Is there any additional analysis that should be conducted to determine if other fuels should be exempted?

- f) Exemption for Small Producers and Importers
Producers and importers of less than amount to be determined are exempt

Questions for all advisory group members

- Should there be an exemption for small producers and small importers? What criteria should be used to determine a small producer or importer?

3. Carbon Intensity Requirements for Transportation Fuels

This section will contain the recommended compliance schedule for transportation fuels required to comply with LCFS regulation. It will contain recommended baseline APCI values and annual reduction levels in CO₂e g/MJ, though enforced annual levels may be set by individual states.

- a) Start Date for Carbon Intensity Requirements – Date to be determined
- b) Yearly reduction levels
 - i) Carbon Intensity Requirements for Gasoline and Gasoline Substitutes
 - ii) Carbon Intensity Requirements for Diesel Fuel and Diesel Fuel Substitutes
 - iii) Carbon Intensity Requirements for Alternative Fuels

4. Requirements for Regulated Parties

The purpose of this section is to establish the criteria by which a regulated party is determined. This section will need specific language and a determination for who will be regulated under the model rule.

- a) Identification of Regulated Parties (**EXAMPLE LIST**)

Comment [ab4]: This section needs specific recommendations from the data and modeling subgroup.

Comment [ab5]: The draft model rule subgroup would appreciate comments from advisory group members on a draft list of regulated parties to include.

Applicable Fuel	Regulated Party
Gasoline	Fuel Producer/importer
Reformulated Gasoline	Fuel Producer/importer
Diesel Fuel	Fuel Producer/importer
Electricity	1) Load serving entity (LSE) supplying electricity for vehicle use OR 2) Contractor for LSE installing charging stations for electric vehicles
Fossil Compressed Natural Gas (CNG)	Utility company, energy service provider, or other entity that owns the fuel dispensing equipment
Fossil Liquefied Natural Gas (LNG)	Entity that owns the fuel when transferred to fuel dispensing equipment
Biogas CNG or Biogas LNG	Fuel Producer/importer
Compressed or Liquefied Hydrogen (H)	Owner of the finished fuel
Fuel Blend Containing Hydrogen	Owner of the finished fuel
Ethanol	Fuel Producer/importer
Biobased Diesel	Fuel Producer/importer
Renewable Diesel	Fuel Producer/importer
Denatured Fuel Ethanol (E100)	Fuel Producer/importer

Comment [ab6]: Required in Milwaukee and Chicago

Questions for advisory group members

- What should the definition of producer and importer be?
- Should the draft model rule establish a process for the transfer of a regulated party status and the associated compliance obligations by agreement, notification, or other means?
- Should electric utilities be included as a regulated party as a provider of non-liquid transportation fuels (PHEVs, EVs)?

5. Determination of Carbon Intensity

This section will provide instructions on how to determine a firm's carbon intensity, how calculate the firm's average fuel carbon intensity (AFCI), and how to work with an approved 3rd party certifier to propose a new LCA value for a unique fuel pathway.

- Methods for all fuels to determine carbon intensity
 - Method 1 – Look-up Table
 - Method 2 – Propose modification to fuel pathway model
 - Method 3- Submission of new LCA with 3rd party certifier
 - Approved 3rd party certifiers
 - Who/what entity qualifies as an approved 3rd party certifier
- Calculation of Average Fuel Carbon Intensity (AFCI)
 - AFCI or CI =
$$\frac{\sum_n F_n E_n I_n}{\sum_n F_n E_n}$$
 - n = Fuel pathway
 - F_n = Volume from fuel pathway n (gal, etc)

Comment [ab7]: This section needs specific recommendations from the data and modeling subgroup.

- (3) E_n = Energy content of fuel n (MJ/gal)
 - (4) I_n = Average fuel carbon intensity of n (g/MJ)
- c) Score approval by regulator

Questions for data and modeling subgroup members

- What LCA methodology should be used to determine carbon intensity default values?
- Should the LCFS process recommend the creation of a panel of state experts from across the Midwest that could help states that lack technical expertise?

6. Calculation of Credit Balance

This section outlines a formula for calculating credits and deficits.

Tenets for a Low Carbon Fuel Standard Rule with a Credit Trading and Banking Provision

- The regulated entity must hold enough credits at the end of a compliance period to equal the GHG emissions of their regulated fuels.
- Credit generation provides the economic incentive to develop low carbon fuels and participate in the market.
- The more fuels that are regulated, the more robust the market, the cheaper credits become and the less costly the LCFS program becomes.
- Credits are good for the life of the LCFS program.

- a) Compliance period is a calendar year
- b) Calculation of Credit Balance
- c) Deficit Carry-over
- d) Deficit Reconciliation

Questions for compliance subgroup members

- How should credits and deficits be calculated?
- What calculation formula should be used to calculate credits and deficits? Does the group recommend using the CARB calculation formula? Is there an alternative formula to propose?

7. Credit Acquisition, Banking, and Trading

This section will define how a credit trading and banking system would work for regulated parties to comply with an LCFS regulation.

A regulated party will be allowed to retain credits indefinitely for use in the Low carbon Fuel Standards market and will be allow to acquire credits from, trade credits with or transfer credits to another regulated party.

A regulated party will not be allowed to acquire credits from, trade credits with or sell credits to a non-regulated party; use credits generated outside of the Low Carbon Fuel Standard for compliance with a Low Carbon Fuel Standard requirements; generate credit from fuels

Comment [ab8]: This section needs specific recommendations from the compliance subgroup

Comment [b9]: Not part of the rule. Provides the reader with a framework for a LCFS and reasoning behind developing a LCFS based on a credit trading and banking system.

Comment [ab10]: This section needs specific recommendations from the compliance subgroup

exempted from the Low Carbon Fuel Standard; use anticipated credits from future carbon intensity reductions.

- a) Credits retained without expiration
- b) Only regulated entities can trade credits
- c) Credits generated outside the state may not be used in the program
- d) Borrowing credits is not allowed
- e) Credits generated from exempt fuels are not allowed.

Questions for compliance subgroup members

- Should a Midwestern system be developed to trade credits beyond individual state borders?
- Could a regional technical group be established to provide assistance to states for tracking compliance?

8. Reporting Requirements

- a) Regulated parties are required to produce an annual compliance report
(EXAMPLE LIST)
 - i) Total credits and deficits
 - ii) Credits carried-over
 - iii) Deficits carried-over
 - iv) Credits generated and acquired w/ paper trail
 - v) Credits sold, exported, retire and transferred w/ paper trail
 - vi) Volume of fuel produced, imported and dispensed
 - vii) Carbon intensity of the fuel produced.

Comment [ab11]: This section needs specific recommendations from the compliance subgroup

- b) Rounding and Significant Digits

Comment [DNM12]: Should make clear how to calculate a fuel intensity, and reflect the sig figs in the default carbon score. It is hard to track compliance without citing required sig figs

- c) Record Keeping

(EXAMPLE LIST)

- i) Records should be kept for X years at a minimum.
- ii) Evidence of Physical Pathway
 - (1) Initial Demonstration of Delivery Methods
 - (2) Initial Demonstration of Fuel Introduced into the Physical Pathway
 - (3) Initial Demonstration of Fuel Removed from the Individual Pathway
 - (4) Requirements for Changes to the Physical Pathway
- iii) Periodic audit process

Questions for compliance subgroup members

- Should we recommend a time period for how long records should be kept? Or should they be kept indefinitely? Should this issue be included in a model rule? Individual state air quality regulations could provide guidance on this issue.
- Should we include a section on rounding and significant digits in the draft model rule?

9. Enforcement

Penalties similar as those with other air quality violations

Comment [ab13]: This section needs specific recommendations from the compliance subgroup

For violations, jurisdictions may: **(EXAMPLE LIST)**

- a) Implement legislative penalties; or
- b) Implement a credit recoupment scheme, whereby the penalty levied for non-compliance is the cost, plus any administration, for subsequent purchases by the jurisdiction of sufficient credits to cover off the deficiency of the entity in order to meet compliance under the program.
- c) Periodic audits
- d) Penalties for non-compliance

Questions for compliance subgroup members

- Is everyday of the year a violation for missing an annual limit?
- If a credit system is established, are penalties reflected in purchasing credits?
- Who should the penalty be levied against? What entity is responsible for purchasing credits?

10. Leakage

- a) Offsets
- b) Yield improvement programs

11. Sustainability

- a) Any sustainability criteria developed by subgroup and agreed upon by full advisory group.

Comment [ab14]: Placeholder sections to incorporate recommendations from the leakage and other environmental impacts subgroup