Using U.S. EPA RINs for CA LCFS Compliance

CARB
Compliance & Enforcement Workgroup
December 13, 2007 Meeting

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Using RINs for LCFS Compliance
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Using RINs for LCFS Compliance
Introduction

Q: Why use U.S. EPA RINs as part of the CA LCFS Compliance Program?

A: Builds on existing program that identifies and tracks title transfer of renewable fuels in U.S.

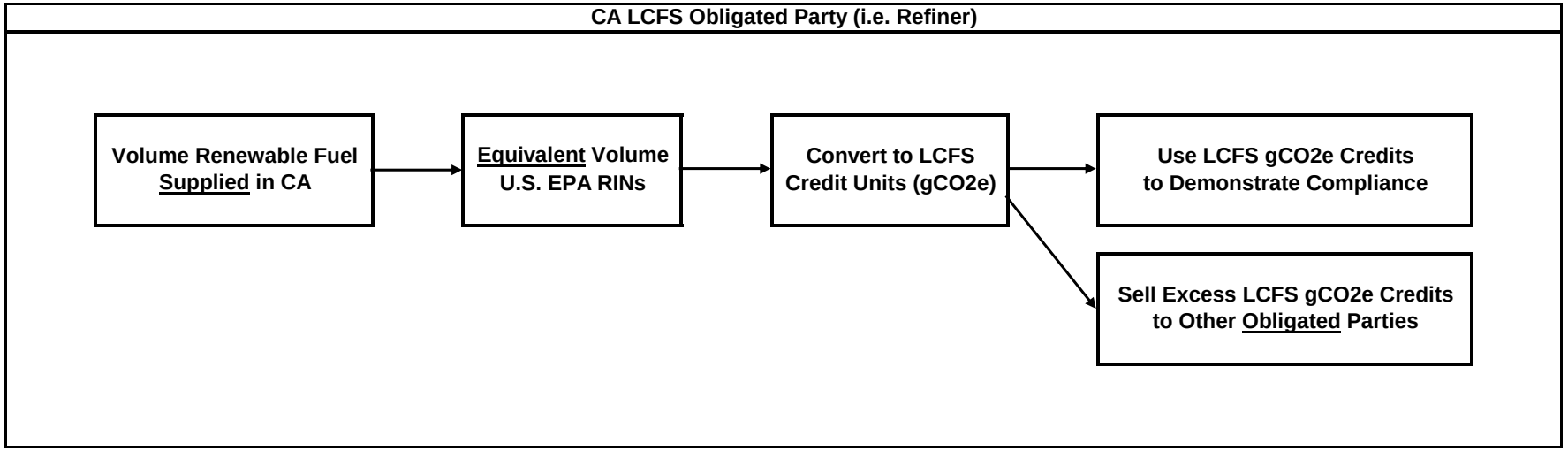
Avoidance of duplicate U.S. and CA tracking and reporting systems

Renewable fuels used in CA will be a mixture of fuels produced within and outside of CA, potential to avoid problems associated with extending CA regulations to fuel producers outside of CA

Maintains fungible nature of ethanol market

Avoids shuffling of ethanol to meet the CA LCFS and potential increases in total CO2 emissions

Using RINs for LCFS Compliance
Overall Compliance Scheme



- To ensure volume of renewable fuel in CA fuel pool increases, link use of RINs to equivalent volume of renewable fuel supplied in CA
- Preserves fungibility of existing renewable fuel distribution system
- Convert RINs to CA LCFS credits to facilitate trading which is necessary for obligated parties to demonstrate compliance

Using RINs for LCFS Compliance
RINs - Definitions

- Renewable Identification Number (RIN)
  - Unique number generated to identify a volume of renewable fuel
  - RINs are assigned to batches of renewable fuel by producers or importers
  - The RIN is a 38 character numeric code of the following form:
    - KYYYYCCCCFFFFFBBBBBRRDSSSSSSSSEEEEEEEE
    - K Code – K has a value of 1 when assigned to the batch and 2 after the RIN has been separated from the batch – this is part of the EPA trading mechanism
    - YYYY - is the calendar year in which the batch was produced or imported
    - CCCC – is the EPA registration number of the company that produced or imported the batch
    - **FFFFF – is the EPA facility number at which the batch was produced or imported**
    - BBBBB – is a unique batch number assigned by the producer or importer in a given calendar year
    - **RR – is the equivalence value of the renewable fuel assigned by the EPA and multiplied by 10**

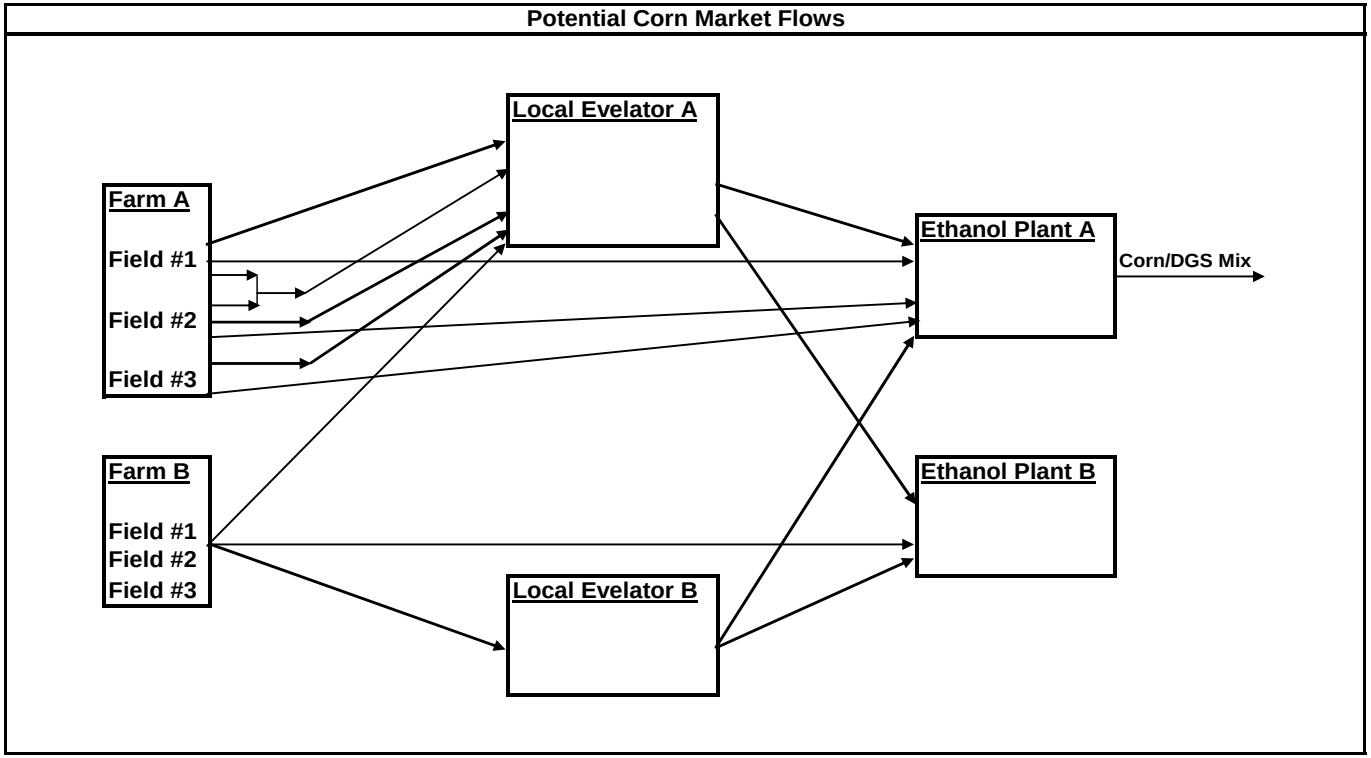
Using RINs for LCFS Compliance
RINs - Definitions

- Renewable Identification Number (RIN) – Continued
  - The RIN is a 38 character numeric code of the following form:
    - KYYYYCCCCFFFFFBBBBBRRDSSSSSSSSEEEEEEEE
    - D Code – D has a value of 1 when the renewable fuel meets the EPA definition of cellulosic biomass ethanol and 2 otherwise
    - **SSSSSSSS – is a number representing the first gallon-RIN of the batch**
    - **EEEEEEEE – is a number representing the last gallon-RIN of the batch**
- Definition of a Batch
  - Volume of renewable fuel that has been assigned an unique RIN code BBBBB within a calendar year
    - Can not exceed 99,999,999 gallon-RINs
    - Production or importation can not span calendar months
    - **Multiple shipments can have the same batch number**
  - **Unlikely that the RIN code BBBBB will be useful for LCFS Compliance**

Using RINs for LCFS Compliance
RINs - Definitions

- **Gallon-RINs versus Actual Renewable Fuel Gallons**
  - The RIN volume or volume represented by a RIN is calculated by subtracting the ending Gallon-RIN code from the starting Gallon-RIN code and adding 1
    - Gallon-RINs = (RIN code EEEEEEEE – RIN code SSSSSSSS + 1
  - The RIN volume is equal to the Equivalence Value (EV) for the renewable fuel times the standard volume of the renewable fuel at 60 deg. F
  - Since the EV is in the RIN, the Gallon-RINs can be converted back into Renewable Fuel Gallons for use in CA LCFS compliance calculations

Using RINs for LCFS Compliance
Ethanol Plant Feedstock Market

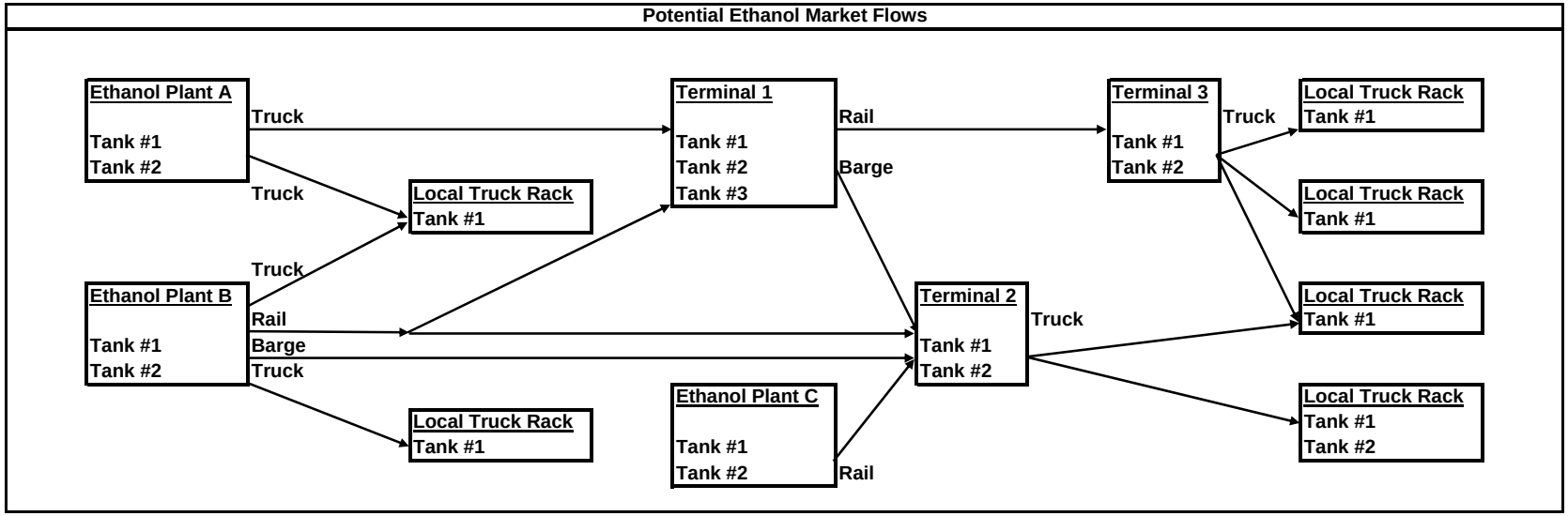


- The current ethanol feedstock market is a fungible system
  - Farms may move product to multiple elevators or to multiple ethanol plants
    - The same products from different fields may be combined when harvested
  - Elevators have limited segregation ability and ethanol plants have very limited feedstock segregation ability
    - Some corn based ethanol plants may combine some of their corn feedstock with DGS for sales to feedlots

Using RINs for LCFS Compliance
Ethanol Plant Feedstock Market

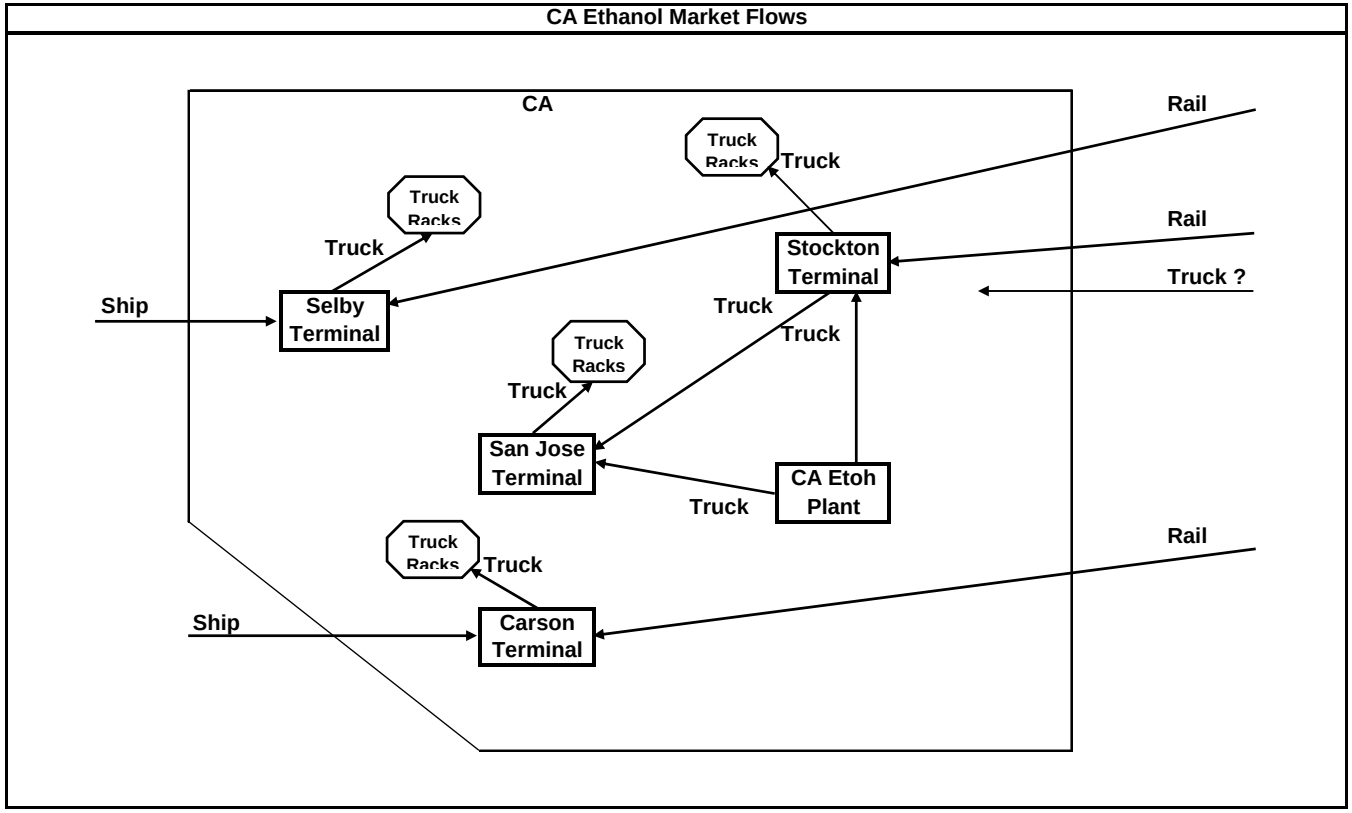
- Given the nature of the ethanol plant feedstock market it is unlikely that any compliance mechanism can be developed to account for field specific or farm specific ethanol
  - Compliance requirements argue for standard treatment from a Life Cycle Analysis (LCA) for a given type of renewable feedstock
    - i.e. one value for corn, one value for soybeans, one value for cellulosic material for the feedstock production part of the LCA
- The EPA facility number in the RIN can be used to identify the renewable from a LCA perspective
  - A facilities characteristics are know (i.e. wet mill or dry mill, coal or natural gas or biomass used for fuel, and corn or cellulosic based feedstock)
  - CA could assign a default value assuming coal fired, dry milled corn based ethanol unless a facility elects to register with CA
  - CA could ask the EPA to allow a facility to use 2 facility numbers for a plant that has both corn based and cellulosic based ethanol, or the batch numbers or the equivalence value in the RIN could be used in these cases

Using RINs for LCFS Compliance
Ethanol Market



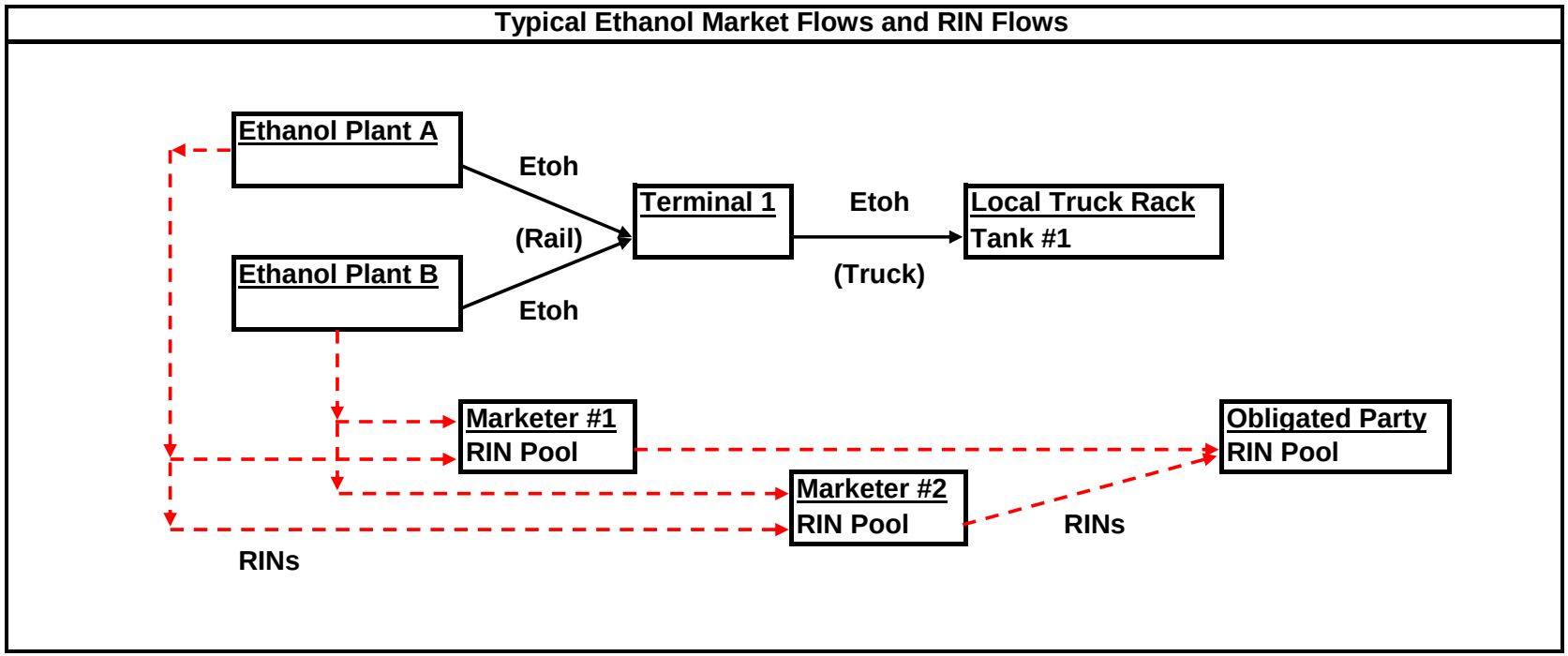
- The current ethanol market is a fungible system
  - Ethanol plant and terminal tankage is limited
  - Most local truck racks only have 1 ethanol tank
  - Most terminals and local truck racks receive ethanol from more than one ethanol plant
  - Transportation capacity will be adversely impacted with any decrease in fungibility

Using RINs for LCFS Compliance
Ethanol Market



- The current CA ethanol market is also a fungible system
  - Limiting fungibility will decrease capacity
  - Terminals lease portions of tanks, thus an obligated parties ethanol is commingled at the terminals and at truck racks
  - Know of an instance where a RR car of ethanol had 10 title transfers when it arrived in CA

Using RINs for LCFS Compliance
LCFS Compliance Issues



- The title transfer of ethanol (RINs) differs from the custody transfer
  - Custody Transfer - The majority of the ethanol moves by rail from an ethanol plant to a bulk terminal and by truck from the terminal to a local truck rack
  - Title Transfer - The majority of the ethanol is sold by producers to marketers who sell the ethanol to other marketers or to obligated parties
  - RINs move with title transfer of renewable fuels, not custody transfer
    - This allows for an efficient fungible market

Using RINs for LCFS Compliance
LCFS Compliance Issues

- Requiring custody tracking of ethanol to CA or within CA from an individual ethanol plant is not recommended and is not needed to fulfill the objectives of the LCFS program
- A custody tracking requirement will:
  - Disrupt the ethanol market
  - Add to ethanol costs (A single RR car rate versus a unit train rate from Iowa to LA is $1,400 per RR car more expensive)
  - Resulting in shuffling of ethanol and potential increase in total CO2 emissions
  - Potentially lead to issues in applying CA regulations to firms outside of CA

Using RINs for LCFS Compliance
LCFS Compliance Issues

- Cellulosic renewable fuels cost more than conventional renewable fuels because their production requires additional feedstock processing which increases capital and operating costs
  - As long as cellulosic renewable fuels are more expensive, market demand will be set by regulatory requirements
  - If cellulosic renewable fuels become cheaper than conventional renewable fuels then economics will set market demand
- By limiting the use of RINs to the equivalent volume of renewable fuel blended in CA, the proposed compliance mechanism:
  - Enables the CA LCFS to drive technology and advanced low carbon renewable fuel production
  - Avoids shuffling of renewable fuels and potential increases in total CO2 emissions

Using RINs for LCFS Compliance
LCFS Compliance Issues

Hypothetical Example of Proposed RIN Compliance Mechanism for Refiner A (MBPD)

Current - 2007

	CA	non-CA	Total U.S.
Hydrocarbon Gasoline	94.3	96.0	190.3
Ethanol (non-cellulosic)	5.7	4.0	9.7
Ethanol (cellulosic)	0.0	0.0	0.0
Total	100.0	100.0	200.0

2013 CA w/o LCFS

	CA	non-CA	Total U.S.
Hydrocarbon Gasoline	90.0	93.2	183.2
Ethanol (non-cellulosic)	10.0	6.6	16.6
Ethanol (cellulosic)	0.0	0.2	0.2
Total	100.0	100.0	200.0

201X CA w LCFS & Ethanol Custody Tracking Requirement

	CA	non-CA	Total U.S.
Hydrocarbon Gasoline	90.0	93.2	183.2
Ethanol (non-cellulosic)	0.0	6.6	6.6
Ethanol (cellulosic)	10.0	0.2	10.2
Total	100.0	100.0	200.0

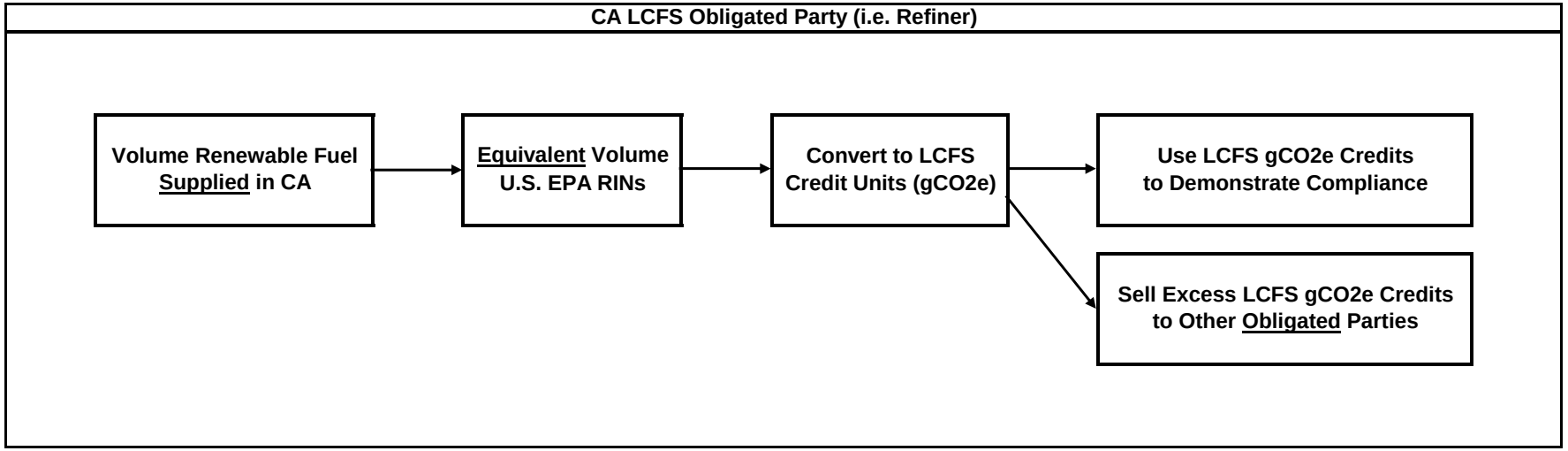
201X CA w LCFS & w/o Ethanol Custody Tracking Requirement

	CA	non-CA	Total U.S.
Hydrocarbon Gasoline	90.0	93.2	183.2
Ethanol (non-cellulosic)	6.0	0.6	6.6
Ethanol (cellulosic)	4.0	6.2	10.2
Total	100.0	100.0	200.0

Total cellulosic ethanol demand is the same

- The proposed LCFS compliance mechanism will not decrease low carbon renewable fuel demand

Using RINs for LCFS Compliance
Overall Compliance Scheme



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Using RINs for LCFS Compliance
LCFS Compliance Issues

- How would the volume and type of renewable fuel actually blended in CA be confirmed?
  - Obligated parties would demonstrate volumes based on IRS form 720-T0 "Terminal Operator Report" which shows fuel volumes by type by owner
- What if other states enact an LCFS?
  - Obligated partied would have to report the RINs used for compliance with other states LCFS to CARB to ensure the same RIN was not used to demonstrate compliance with more than one states program

Using RINs for LCFS Compliance
RINs Under Future EPA Programs

- What if the EPA changes the RINs to a gCO2e reduction basis for the Alternative Fuel Standard (AFS) Regulations?
  - EPA would publish a lookup table to convert RINs back to the original volume basis to demonstrate compliance with the RFS program which is volume based and the RINs could still be used for CA LCFS compliance
- What if CA elects not to use the EPA Life Cycle Analysis (LCA) values for renewable fuels?
  - CARB could publish a table to convert EPA RINs to CA basis using Facility numbers

Using RINs for LCFS Compliance Recommendations

- Use U.S. EPA RINs as a basis for CA LCFS compliance to avoid duplicate U.S. and CA tracking and reporting systems and to minimize market disruption, program costs and total CO2 emissions

- Approve the “paper” compliance mechanism presented in this presentation to demonstrate compliance to avoid renewable fuel shuffling and disruption of the fungible nature of the renewable fuels market while maintaining the goals of the LCFS program

- The Compliance & Enforcement Workgroup needs to provide input to the Policy Workgroup on compliance issues related to renewable fuels feedstock markets and renewable fuels markets
  - The number of default renewable fuels values needs to be limited to reflect the real world limitations of the markets