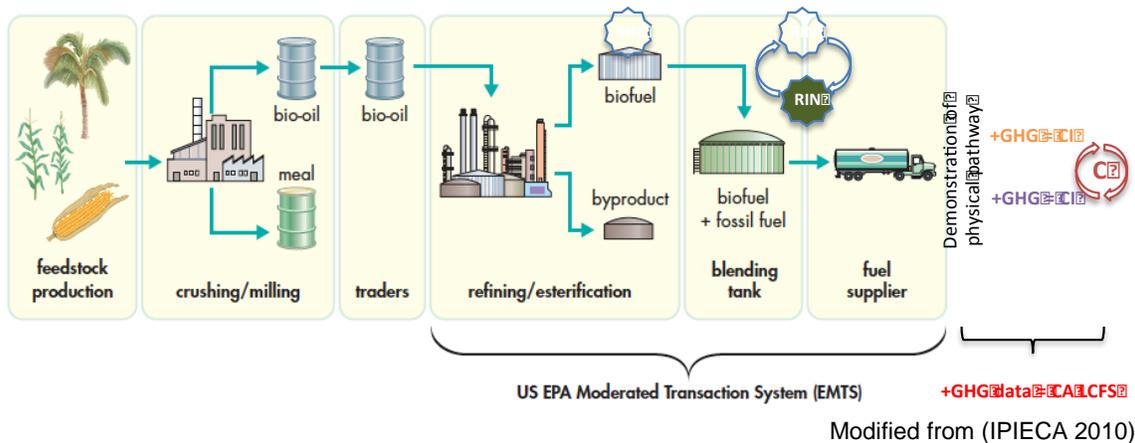


## Discussion Draft for CA LCFS Sustainability Working Group: Chain-of-Custody Implementation for Meeting the Sustainability Requirement

**Chain-of-Custody (CoC)** in the current LCFS carbon accounting scheme and US EPA RIN system does not track feedstock to the field level, only to the refineries. Establishing sustainability requirement, regardless voluntary or mandatory, will require tracking CoC to the field level. The inconsistency between carbon accounting CoC and sustainability requirement CoC must be addressed.

The current RFS2 and LCFS CoC is illustrated below:



The RFS2 program generates certificates (RINs) whenever a volume of fuel is produced or imported. This RIN then moves alongside a batch of fuel until the fuel is blended. Once a fuel is blended, the RIN is decoupled from the batch of fuel that generated it, and may be freely traded independent from the physical fuel. Regulated parties may obtain RINs on the market, independent of fuel, and retire them (effectively recoupling them to some volume of fuel) to show that they are in compliance with the standard. The LCFS follows the same CoC, and additional GHG values are calculated based on fuel pathway information including feedstock type, refinery operating characteristics, and transport method. Carbon credits/deficits are generated on a *quarterly* basis based on whether a regulated party is below (credits) or above (deficits) the target AFCI (average fuel carbon intensity) level. These carbon credits can then be traded freely to meet compliance with the LCFS.

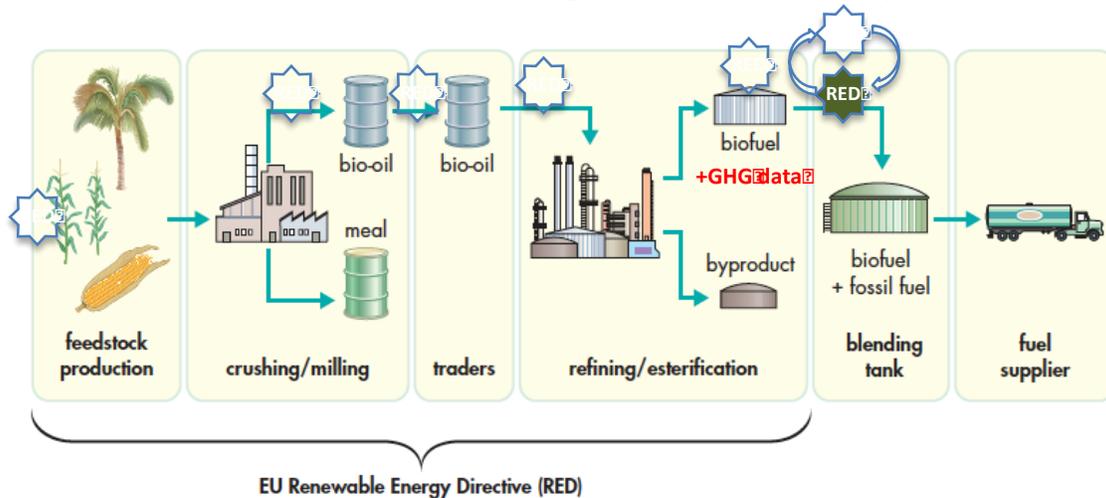
Despite the requirement in the RFS2 that producers must provide “... Electronic data identifying the land by coordinates of the points defining the boundaries from which each type of feedstock listed per paragraph (d)(1) of this section was harvested.”<sup>1</sup> Such requirement has not been implemented as all the major biofuel feedstock (including corn, soybean, and Canadian wheat) has been exempted.<sup>2</sup> Generating certificate at the feedstock level simply implements the

<sup>1</sup> RFS2 80.1451 (d)(2)

<sup>2</sup> <<not sure whether sugarcane are required to be tracked at the feedstock level.>>

existing requirement, but will need a more comprehensive CoC system than the current system requires.

In contrast, the EU-RED CoC starts at the feedstock level and follows a mass-balance approach. Certificates are generated at the feedstock level, carrying certified information of feedstock meeting the RED sustainability requirements.<sup>3</sup>



Modified from (IPIECA 2010)

**\*\* Extending CoC to the field level can have the following benefits:** (1) it will **incentivize** fuel providers to report agricultural practices that also have large carbon reduction benefits such as no-till, reduced fertilizer use, and yield improvement that current cannot be realized under the current carbon accounting CoC. (2) it provides a mechanism for verification if future policies allow producers to waive the default ILUC factor based on certain sustainability practices such as feedstock grown on marginal/degraded/abandoned land, additional production on existing cultivated land (such as double crops and mixed cropping systems), etc.

For corn ethanol, for example, emissions at corn field (36 gCO<sub>2</sub>/MJ) and the ILUC factor (30 gCO<sub>2</sub>/MJ) account for a total of 66 gCO<sub>2</sub>/MJ out of 75-97 gCO<sub>2</sub>/MJ total emissions. Similarly to second generation biofuels, farm level emissions account for the majority of the total lifecycle emissions.

In general, mass balance CoC offers the greatest assurance that sustainably produced feedstock are converted to fuels and delivered to parties claiming sustainability credits/certificates. However, there is also recognition that mass balance will be challenging to establish for food commodities such as soybean that can be traded multiple times before the crushing, thus the supply chain can

<sup>3</sup> RED includes sustainability criteria with which biofuels contributing to these targets, whether produced within the EU or elsewhere, must comply:

- Biofuels must meet a GHG threshold of 35%, rising to 50% in 2017
- Feedstocks must not come from land with high biodiversity value
- Feedstocks must not come from land with high carbon stocks

be extremely complex and soybean oil is only the byproduct of the main product, soybean meal, thus there is little economic incentive and minimum return of investment on a dedicated supply chain for biodiesel production. For the other commodities/feedstocks, such as cellulosic energy crops, woody biomass, or even commodity crops such as corn or sugar beets, a mass balance CoC is not too difficult. Therefore, for compliance purpose, it is worth considering whether a flexible CoC system may be more desirable especially in the early years of compliance.

One of the proposed approaches is the “hybrid” system, where mass-balance CoC is generally required but certain feedstock, such as soybean biodiesel and wastes, can adopt other CoC such as book-and-claim (soybean) or no CoC requirement (wastes, especially used cooking oil, municipal and industrial wastes, but perhaps not including agricultural wastes and forest residues). However, if book-and-claim system is allowed for a feedstock category, incentives cannot be awarded to farms adopting additional sustainability practices as there is no way to verify whether the feedstock produced beyond the sustainability requirement is actually being converted to fuels. Therefore incentives should be provided to allow opportunity for opting-in to mass-balance CoC shall producers decide to take additional steps beyond sustainability standard and claim additional carbon or sustainability credits involving sustainability practice such as those examples provided in \*\*.

#### Reference:

IPIECA. 2010. Chain of custody options for sustainable biofuels. London, UK: The global oil and gas industry association for environmental and social issues.