Explainer: RINs and RVOs

This document provides a quick overview of how the Renewable Identification Number (RINs) compliance credits work and what the recent changes in the biofuel mandates look like.

What is a RIN?

Renewable Identification Numbers (RINs) are the compliance credits used under the U.S. Renewable Fuel Standard (RFS) program, which mandates that a certain volume of renewable fuels (like ethanol, biodiesel, renewable diesel, etc.) must be blended into transportation fuel each year.

How are RINs Created?

- When a renewable fuel producer (like an ethanol or biodiesel plant) produces a qualifying renewable fuel, they generate RINs along with it.
- Each gallon of renewable fuel gets assigned a unique RIN (or a portion thereof — e.g., 1.5 RINs per gallon for biodiesel because of its energy content).

Why RINs Matter?

- RINs are a market-based tool to enforce renewable fuel blending.
- The system gives flexibility: companies can either blend fuel themselves or buy credits.
- RIN prices impact fuel prices, agriculture markets (especially corn and soy), and compliance costs for refiners.
- **If you're in agriculture (e.g., grain/oilseed sector), RINs can impact your sector indirectly by influencing the demand and price for feedstocks like corn (for ethanol) and soybeans (for biodiesel).**

RIN Lifecycle

- Attached Stage:
    - RINs are "attached" to the physical gallons of renewable fuel when they're produced.
    - As the renewable fuel is sold and shipped, the RIN travels with it through the supply chain.
- Detached Stage:
    - Once a blender mixes the renewable fuel into conventional gasoline or diesel, the RIN is **"separated"** from the fuel.
    - That separated RIN becomes a **tradeable compliance credit**.
- Here's how this works:
    - RINs are generated when renewable fuel is produced, but they only become **separated and tradeable** when the fuel is **blended** into gasoline.
    - Ethanol producers often sell the fuel **with the RIN attached** to blenders, who then separate and use or sell the RIN.
    - RIN revenue usually accrues to **blenders**, **not necessarily producers**, unless the producer blends or retains ownership further downstream.

Types of RINs - Each RIN has a D-code that designates the type of fuel:

D-Code	Fuel Type	Example
D6	Corn ethanol (conventional biofuel)	Ethanol
D4	Biomass-based diesel	Biodiesel, Renewable Diesel
D5	Advanced biofuel	Sugarcane ethanol
D3	Cellulosic biofuel	Cellulosic ethanol

- Each of these has a nested structure, meaning fuel that qualifies for a higher category can also be used to meet lower-category obligations.
- For example, a blender producing biomass-based diesel such as renewable diesel (D4 RINs) can use it to satisfy D5 and D6 RINs).
    - However, the inverse is not true a corn ethanol (D6 RIN) cannot satisfy D3-D5 obligations.

What does "retiring" a RIN mean?

- "Retiring a RIN" means using a RIN to satisfy a compliance obligation under the Renewable Fuel Standard (RFS) — essentially taking it out of circulation so it can't be traded or reused.
- It counts toward the **Renewable Volume Obligation (RVO)** of the **obligated party** (like a fuel refiner or importer).
- Example: Let's say a fuel importer has a 2025 obligation to blend 1 million ethanol-equivalent gallons:
    - They can blend the fuel and generate 1 million D6 RINs, then retire them to meet the RVO.
    - Or they can buy 1 million D6 RINs from the market and retire them without doing any blending themselves.
    - The RIN cannot be transferred, sold, or reused.
    - A RIN generated in **2025** can be used for compliance in **2025 or up to March 31, 2026**.
    - Obligated parties are allowed to carry over up to 20% of their annual RVO using RINs from the previous year.
    - But even with that carryover, **any RIN not retired by March 31** of the following year expires.

What are RVOs?

- Under the Renewable Fuel Standard (RFS) in the U.S., Renewable Volume Obligations (RVOs) are the annual targets set by the Environmental Protection Agency (EPA) that specify how much renewable fuel must be blended into transportation fuel.
- An **RVO** is the **percentage** of renewable fuel that each obligated party (typically refiners and importers of gasoline or diesel) must blend into their fuel supply, or otherwise obtain through Renewable Identification Numbers (RINs).

How are RVOs calculated?

- Each year, the EPA sets total volumes of renewable fuel to be blended (in gallons) by D3-D6 subcategories described in the table below.
- The **RVO for a company** is then determined as:
  - $RVO\ (\%) = \frac{(Volume\ of\ Renewable\ Fuel\ Required\ by\ EPA)}{(Projected\ Volume\ of\ Transportation\ Fuel\ in\ the\ U.S.)}$
- Then the company's **individual obligation** is:
  - $Company\ RVO\ (gallons) = RVO\ (\%) \times Company's\ total\ fuel\ production\ or\ import$

What is the impact of RVOs?

- RVOs can significantly affect RIN prices, which impacts blending economics and biofuel/feedstock markets.
- Proposals (like the recent one in June 2025) to discount RINs from foreign feedstocks (e.g., palm or used cooking oil) could change RVO compliance dynamics, particularly for imported biodiesel.