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Weekly California Low Carbon Fuel Standard (LCFS) Weekly Update January 5, 2022

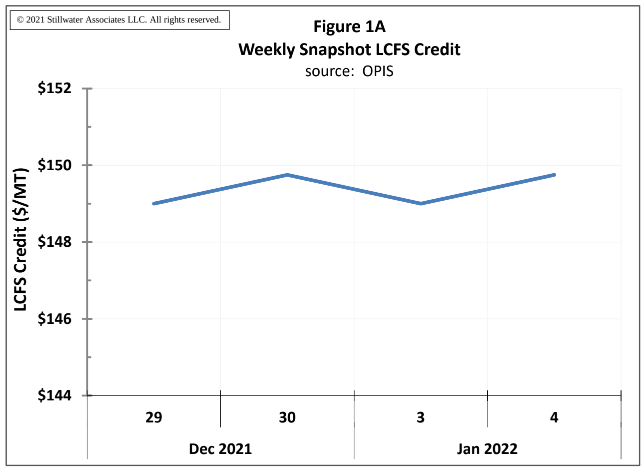
In this week's edition…

- ⇒ Credit prices increased, closing at $149.75/MT.
- ⇒ Trading volumes increased and number of trades decreased.
- ⇒ REG acquires fuel distributer Amber Resources, vertically integrating and enabling REG to capture full value of LCFS credits earned by its low-CI fuels.

Weekly LCFS Credit Price Trend

For the week of December 29 – January 4, credit prices started at $149/MT – up $2.00/MT (~1%) from the previous week's closing price. Credit prices remained stable before closing at $149.75/MT – up $2.75/MT (~2%) from the previous week's closing price. The same week last year averaged $199/MT. Based on the 2022 benchmark, a credit price of $149.75/MT correlates to 20.3 cents per gallon (CPG) for CARBOB and 20.2 CPG for ULSD.

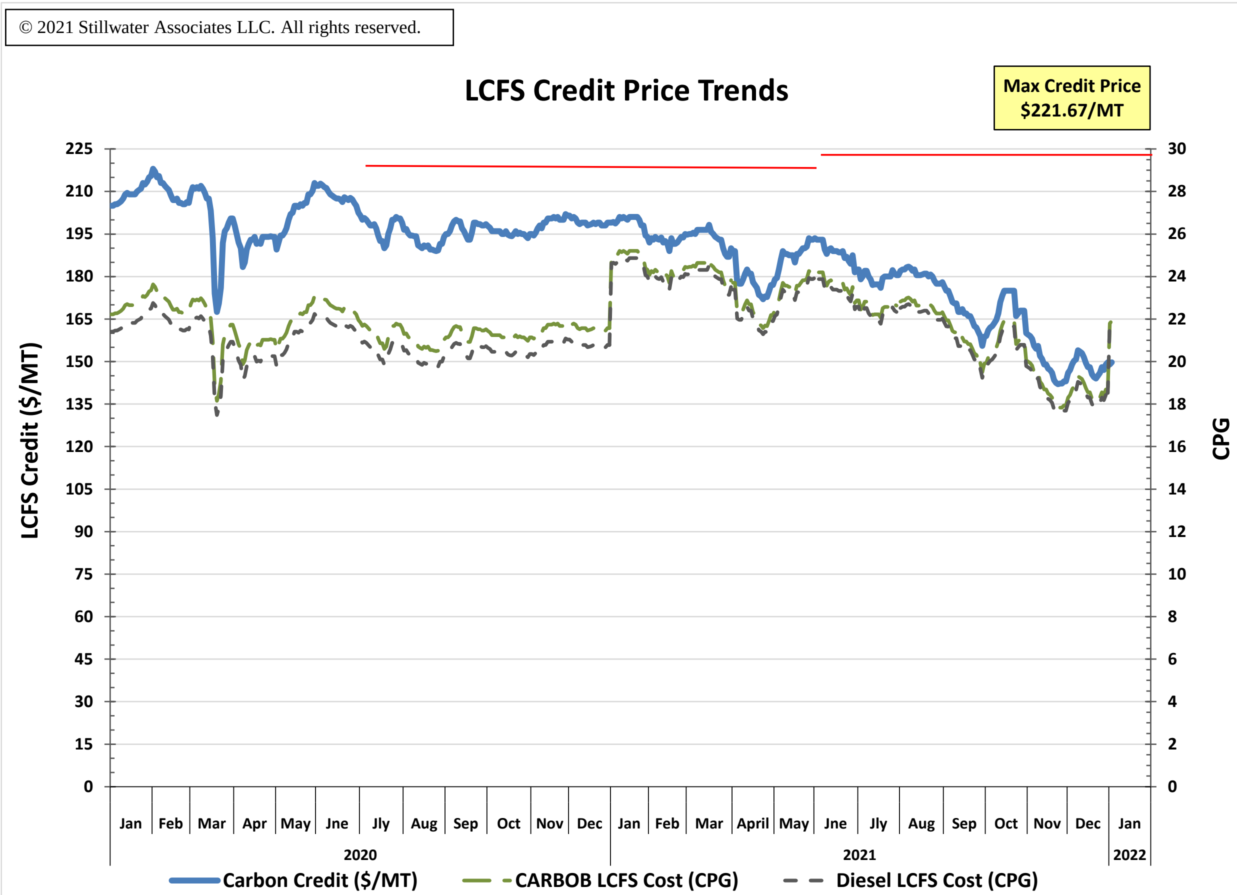
Note: No data was published for December 31st due to the New Year's Day holiday.



In addition to the direct cost of LCFS credit prices, the LCFS program's incremental crude CI provision adds deficits to all CARBOB and ULSD in California. At a credit price of $149.75/MT, the incremental added cost of the 2022 incremental crude provision is 1.65 CPG for CARBOB and 1.85 CPG for ULSD. Given the cost of this additional deficit, the total added cost of the LCFS program is 21.9 CPG for CARBOB and 22.1 CPG for ULSD.

Long-Term LCFS Credit Price Trends

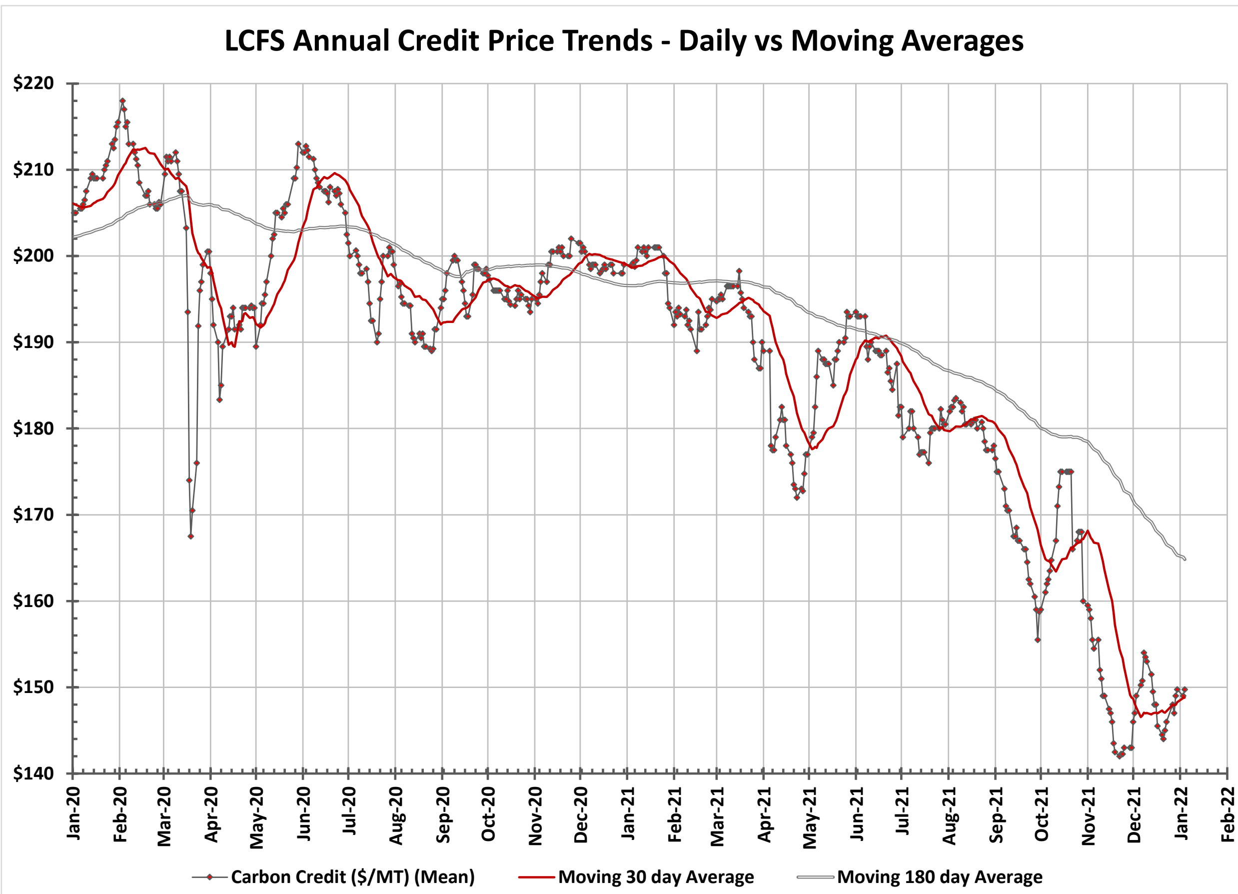
For 2021, LCFS credit prices averaged $178/MT, reaching an annual high of $201/MT on January 22nd and a low of $142/MT on November 22nd. The year-average price for 2020 was $200/MT. As of June 1, 2021, the maximum credit price is $221.67 (up from approximately $218 for the previous year). Credit price trends for the past two years are displayed in Figure 1 below. Note the increased per-gallon costs added to CARBOB and Diesel in the first week of 2022 due to the increase in the CI reduction standard from 8.75% to 10% on January 1.



LCFS Annual Credit Price Trends – Daily vs. Moving Averages

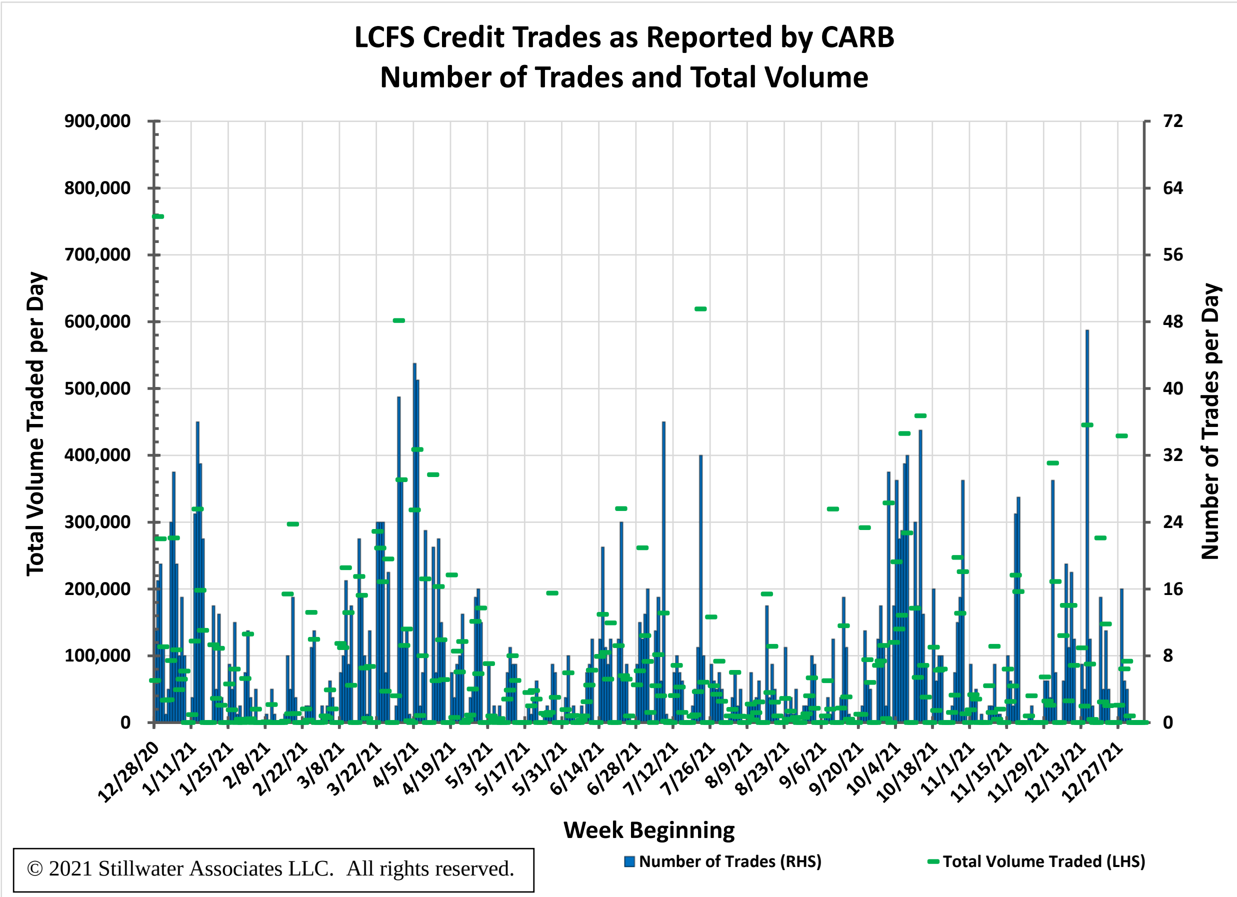
The figure below shows daily OPIS prices along with 30- and 180-calendar-day moving averages. Moving averages are widely used technical indicators that smooth out price trends by filtering out "noise" from random short-term price fluctuations, providing a clearer view of the direction prices are trending. They are used by traders and investors for the "technical analysis" of financial data such as stocks or commodities prices or trading volumes to inform decisions of when to buy or sell stocks or commodities. In addition to helping identify trends, moving averages are also used to determine support and resistance levels. In an uptrend, the average may act like a floor (support), so the price recovers with an upward movement. In a downtrend, a moving average may provide resistance with the price pausing before dropping again.

As can be seen in the figure below, the market is currently in a down trend with the 180-day moving average continuing downward and acting as a resistance level for higher prices.



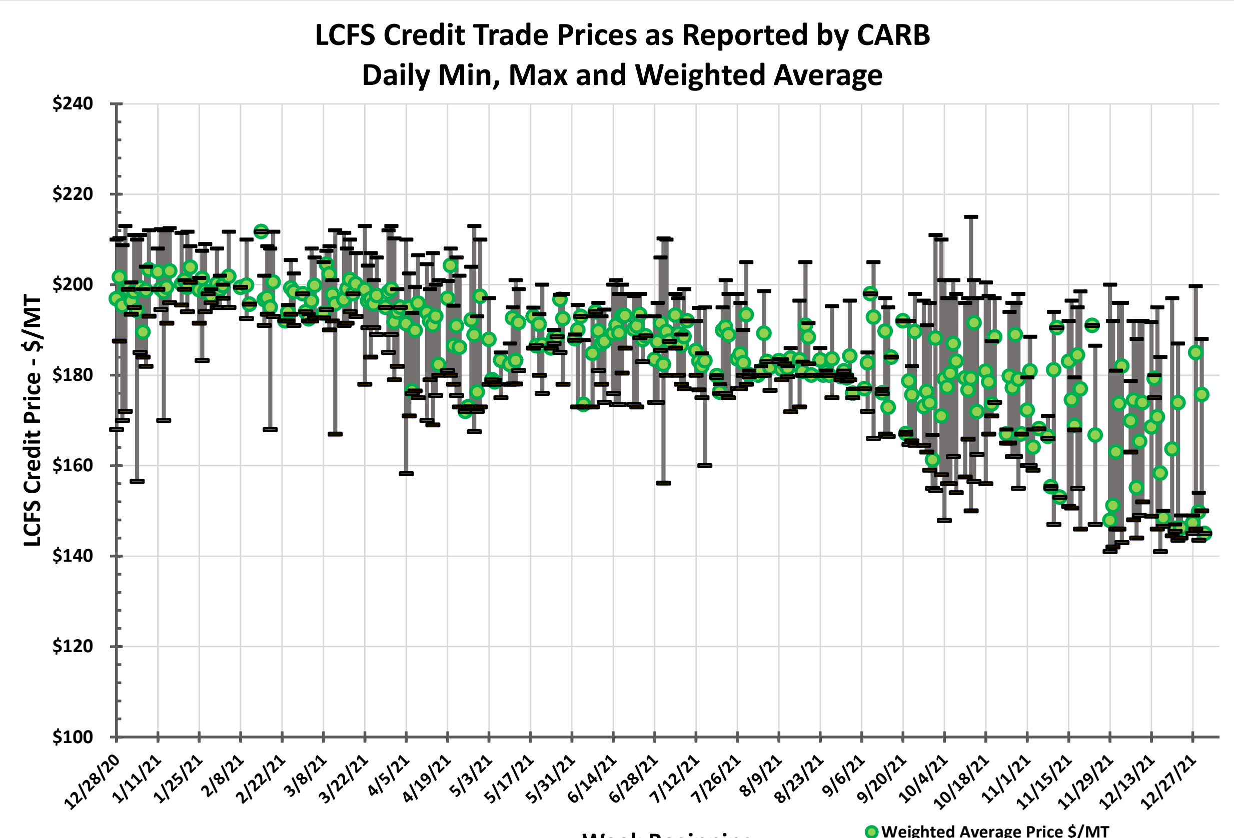
LCFS Trading Trends

The figure below shows a history of volumes traded and number of deals per day for the past twelve months. The week beginning December 27th saw 28 trades totaling 637,073 MT compared to 34 trades totaling 479,807 MT last week.



LCFS Trade Price Trends

The figure below shows the minimum, maximum, and volume-weighted average price traded per day for the past twelve months. The range of prices illustrates that the transactions for some credits have been contracted in prior periods when credit prices were lower, or the credits are discounted for commercial purposes.



LCFS in the News – December 29 – January 4

- First, an article we missed in last week's newsletter: On December 28th, Argus offered a viewpoint on the trajectory of the LCFS given RD production rates and fuel demand. According to Argus, "New low-carbon fuel supplies will add pressure in 2022 on California Low Carbon Fuel Standard (LCFS) credits already trading near three-year lows."
- On December 29th, *Flying Magazine* reported that Darling Ingredients has acquired Valley Protein in a move to target the sustainable aviation fuel (SAF) market.
- On December 30th, Argus offered a viewpoint on refined vegoils as feedstocks for 2022 RD supply. According to Argus, "The feedstock slate for nearly half of total current and announced renewable diesel (RD) plant capacity will require refined vegetable oils through mid-2022 or later, which could push refined/bleached/deodorized (RBD) soybean oil prices to retest recent highs."
- On January 3rd, Argus offered a viewpoint on the shift of the Canadian refinery formerly known as the Come-by-Chance refinery toward biofuels in 2022. According to Argus, Newfoundland and Labrador's Braya Renewable Fuels "will move to capture rising demand of sustainable aviation fuel (SAF) and renewable diesel as it reinvents itself from a boutique gasoline producer."
- On January 4th, Renewable Energy Group (REG) announced that it has acquired Amber Resources, LLC, a Southern California full-service distributor of diesel, gasoline, lubricants, other transportation fuel components, industrial services and additives. According to REG's press release: "This acquisition builds upon REG's downstream participation, growing the company's footprint in one of the most renewables-focused regions in the world. Amber Resources will add over 60 million gallons/year of diesel sales to the company's portfolio and a significant lubricants business as a Shell® Prestige distributor." According to S&P Global, "REG is not alone in looking to add logistic and transportation assets to its asset mix. As demand for renewable fuels grows, more producers have been aligning with transportation and logistics companies to capture the full value chain margins."
- On January 4th, S&P Global reported that Calumet Specialty Products Partners is "moving forward with construction of the renewable hydrogen plant at its Great Falls, Montana, refinery, putting its renewable diesel project one step closer to completion." Calumet's ability to produce renewable or green hydrogen will lower the CI of the RD project and increase the value of the accompanying LCFS credits in California.
- On January 4th, the Weekly Credit Transfer Report for Dec 27 - Jan 2 was posted on CARB's website.