



Post-Coronavirus: What's Next in the Environmental Commodities Markets

Prepared for Parhelion Underwriting Ltd.

April 30, 2020

Disclaimer

Stillwater Associates LLC prepared this report for the sole benefit of the participants in the Parhelion Underwriting Ltd. Webinar on April 30, 2030 and no other party.

Stillwater Associates LLC conducted the analysis and prepared this report using reasonable care and skill in applying methods of analysis consistent with normal industry practice. All results are based on information available at the time of preparation. Changes in factors upon which the report is based could affect the results. Forecasts are inherently uncertain because of events that cannot be foreseen, including the actions of governments, individuals, third parties, and competitors. Nothing contained in this report is intended as a recommendation in favor of or against any particular action or conclusion. Any particular action or conclusion based on this report shall be solely that of the webinar participants. NO IMPLIED WARRANTY OF MERCHANTABILITY SHALL APPLY. NOR SHALL ANY IMPLIED WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE.



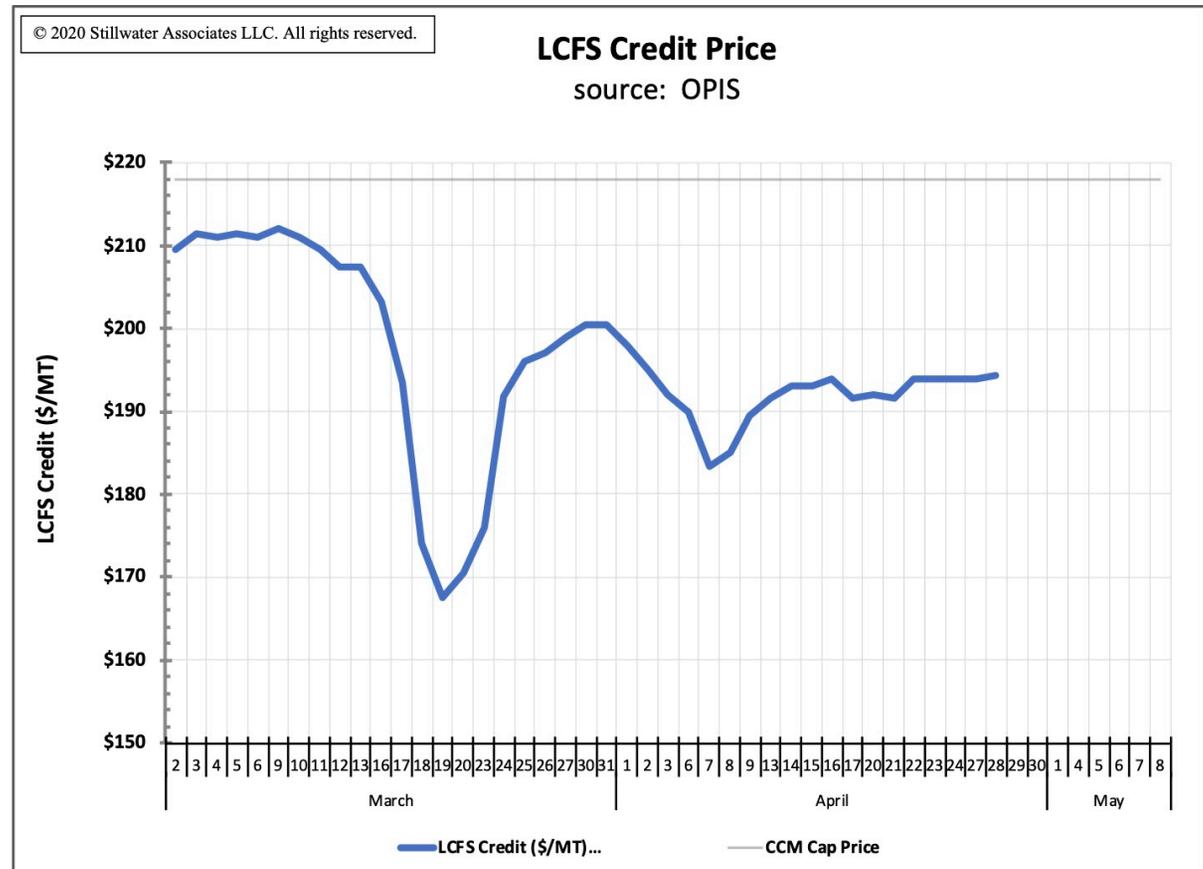
Fueling the future of transportation energy with trusted industry experience

1. Stillwater Associates leverage decades of experience to help clients navigate transportation fuels market challenges. **We see things others miss.**
2. Our clients: government agencies, oil and renewable fuels companies, trade associations, technology developers, private equity firms, and law firms.
3. Leading experts on environmental commodities markets including the Federal Renewable Fuel Standard and California's Low Carbon Fuel Standard.
4. Stillwater's **LCFS Newsletter** offers producers, importers, traders, and investors the right information to make smart credit market decisions.
5. **Questions about the RFS and LCFS post-COVID-19?** Our team of experts is available to provide specific analysis and tailored strategy for your needs.



LCFS credit prices dipped briefly but have rebounded

1. LCFS credit prices fell below \$170/MT around the time California's shelter-in-place orders were implemented.
2. Since March 19th, the credit price has recovered and settled at about 90%-95% of its prior level.
3. With sustained gasoline demand destruction, refiners may be altering their LCFS credit buying and credit holding targets as ongoing deficit generation decreases.



Any significant changes in credit purchase practices will affect credit prices

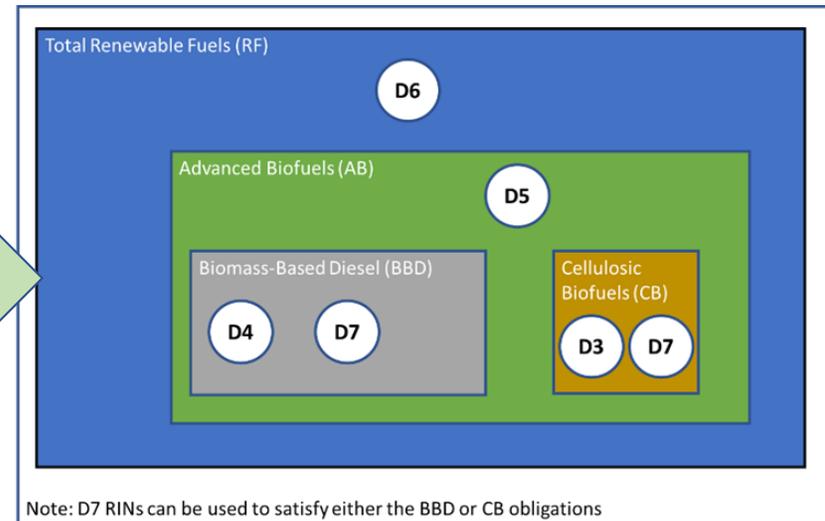
Diesel replacements generate credits and gasoline replacements suffer

1. Currently gasoline demand is off by over 40% and diesel demand is off by 20%.
2. Due to the drop in gasoline demand, deficit generation has also dropped. Flipping the LCFS credit market from being short credits before the crisis to being long credits.
3. As heavy-duty vehicle travel continues to service supply chains during the crisis, renewable replacements for diesel like renewable diesel, and renewable natural gas (CNG/LNG) will continue to generate credits.
4. Because passenger vehicle travel is off during the crisis, renewable replacements for gasoline like ethanol and electric vehicles will suffer.

RFS Refresher

Four Obligations, Five Types of RINs

1. CB Obligation largely filled through RNG
2. BBD Obligation largely filled by BD and RD blending
3. AB Obligation largely filled with BD in excess of BBD Obligation (hence D5 RIN prices near D4); some sugarcane and other non-corn ethanol
4. RF Obligation largely met with corn ethanol



All Four Obligations driven by a refiner's Gasoline + Diesel production

1. Focusing on D4s and D6s, the most widely-traded RINs types
2. 2020 D4 Obligation = $1.5 \times 2.10\% \times (G+D)$
 - 1.5 is biodiesel equivalence ratio; 2.10% is the 2020 RVO for BBD
 - Obligation can be covered by blending BD
3. 2020 Implied D6 Obligation = $8.63\% \times (G+D)$
 - 8.63% is the implied 2020 RVO for conventional biofuels
 - Obligation is only partially covered by blending E10

Shifting the mix between G and D impacts RFS

Scenario: Refiner sells 1 million gallons of BOB and 0.5 million gallons of petro-diesel pre-Covid
 Post-Covid gasoline demand drops 50% and diesel demand drops 20% (0.5 million gallons remaining BOB sales and 0.4 million gallons remaining petro-diesel sales)
 All BOB blended to E10; all diesel blended to B5

Obligation	2020 %RVO	Base Volume			Post-Covid Volume		
		RVO	Available	Action	RVO	Earned	Long (Short)
Cellulosic Biofuel (D3)	0.34%	5,100	0	Purchase 5,100 D3s	3,060	0	Purchase 3,060 D3's
Biomass-Based Diesel (D4)	2.10%	31,500	39,474 from B5 blending	Surplus	18,900	31,579 from B5 blending	Increased Surplus
<i>D5 (Implied)</i>	<i>0.49%</i>	<i>7,350</i>	<i>0</i>	<i>Cover with part of D4 surplus</i>	<i>4,410</i>	<i>0</i>	<i>Cover with part of D4 surplus</i>
Advanced Biofuels (AB)	2.93%	43,950	44,574 (D4 blending + D3 purchase)	Sell 624 surplus D4s	26,370	34,639 (D4 blending + D3 purchase)	Sell 8,269 surplus D4s
<i>D6 (Implied)</i>	<i>8.63%</i>	<i>129,450</i>	<i>111,111</i>	<i>Purchase 18,339 D6s</i>	<i>77,670</i>	<i>55,556</i>	<i>Purchase 22,114 D6s</i>
Renewable Fuels (RF)	11.56%	173,400	150,585 from E10 blending and AB	Cover with D6 purchases	104,040	81,926 from E10 blending and AB	Cover with D6 purchases

As diesel demand drops much less than gasoline, net effect is to soften D4 market and shorten D6 market





Stillwater Associates

...experience runs deep

Thank you.

Questions?