February Shutdown Threatens PADD 1 Product Supply

Inventories may not meet increased IMO demand.

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Data Sources for This Publication
CME Group
EIA
To discover more about the data sources used, click here.

Outages Could Cause Scarcity Pricing

A series of unplanned outages reduced throughput at Petroleum Administration for Defense District 1 refineries to 60% of nameplate capacity in late February, paring gasoline and diesel inventories and leaving regional supplies in doubt. As capacity recovers in April, this note looks at prospects for regional refined products in the runup to International Maritime Organization regulatory changes that could cause scarcity pricing by year-end.

In a note last week (East Coast Refiners Lose Canadian Heavy Card), we looked at PADD 1 crude supply in light of Alberta's imposition of production limits on provincial Canadian producers. The cuts narrowed discounts for Western Canadian crudes versus U.S. benchmark West Texas Intermediate from as much as $43/barrel in October 2018 to $10/barrel during the first quarter of 2019. As a result, PADD 1 refiner PBF Energy—the only regional processor with coking capacity to handle Canadian heavy crude—reduced railed imports from Alberta and advanced plans to overhaul coker units at its Delaware City, Delaware, and Paulsboro, New Jersey, plants.

February Outages

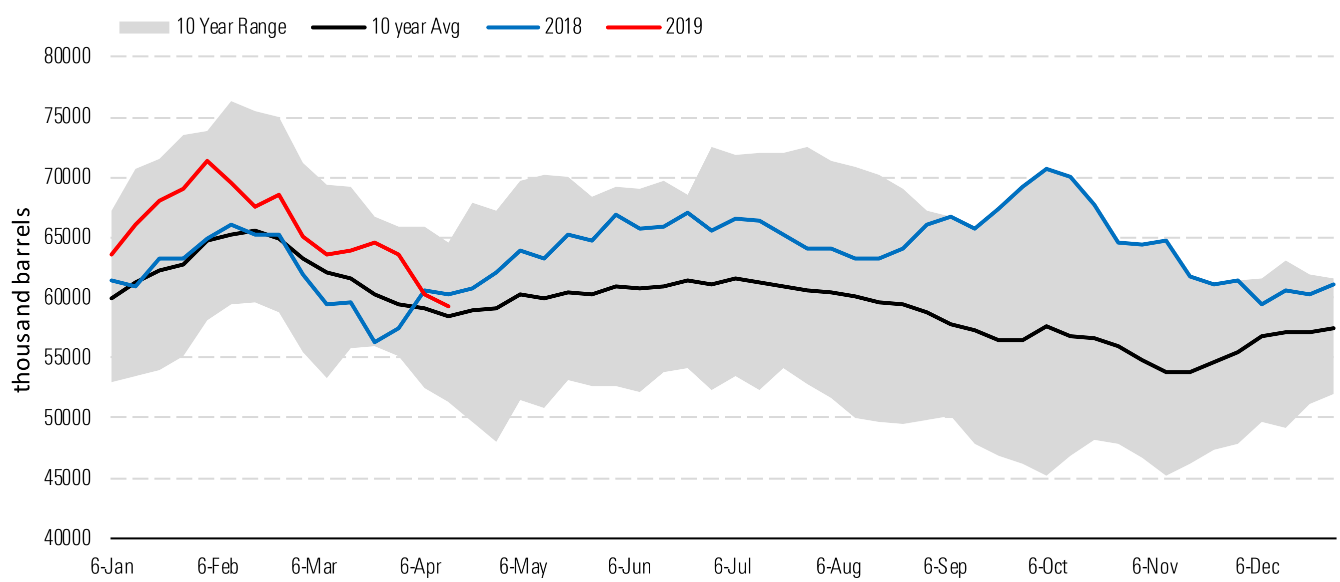
During 2018, total U.S. refinery utilization reached a record annual average 93.2% of throughput capacity, according to Energy Information Administration data. The lowest refinery runs last year were in PADD 1 with an average 85.9% capacity. This year during the first quarter, PADD 1 weekly utilization rates averaged 75.8% (according to EIA) compared with a national average of 89%. Lower run rates in PADD 1 generally reflect poorer margins available to that region's refiners due to feedstock supply constraints. During the first quarter, lower utilization rates than usual resulted from a combination of planned maintenance and unplanned outages at East Coast refineries, culminating in a drop to 60% utilization during the third week of February—the lowest since 2012 and lower than Gulf Coast run rates after Hurricane Harvey in September 2017. That unusual plunge to 60% was facilitated by unplanned outages at Phillips 66's Bayway, New Jersey, and PBF's Delaware City plants as well as planned maintenance at Philadelphia Energy Solutions' Philadelphia plant, knocking out capacity at three of the region's five largest refineries.

Unusually low run rates in PADD 1 during the first quarter caused inventories of gasoline and diesel to fall through early April, leaving a question mark over East Coast product supply for the balance of this year.

Gasoline Stocks

Looking at gasoline inventories first, Exhibit 1 shows weekly EIA data on a seasonal basis since 2009 with the black line representing the 10-year average 2009-18, the blue line 2018, and the red line 2019. The gray shaded area is the 10-year range. During the fall of 2018, gasoline stocks were at 10-year-high levels from September through early December and remained well above the 10-year average until the end of January 2019. These high gasoline inventories resulted from refiners processing record crude volumes in response to strong margins driven by high demand and prices for diesel at the same time as gasoline margins and demand remained tepid. Then in February and March 2019, gasoline stocks tumbled back to last year's level, just above their 10-year average, primarily in response to PADD 1 refiners throttling back throughput to the 60% level.

Exhibit 1 PADD 1 Gasoline Stocks



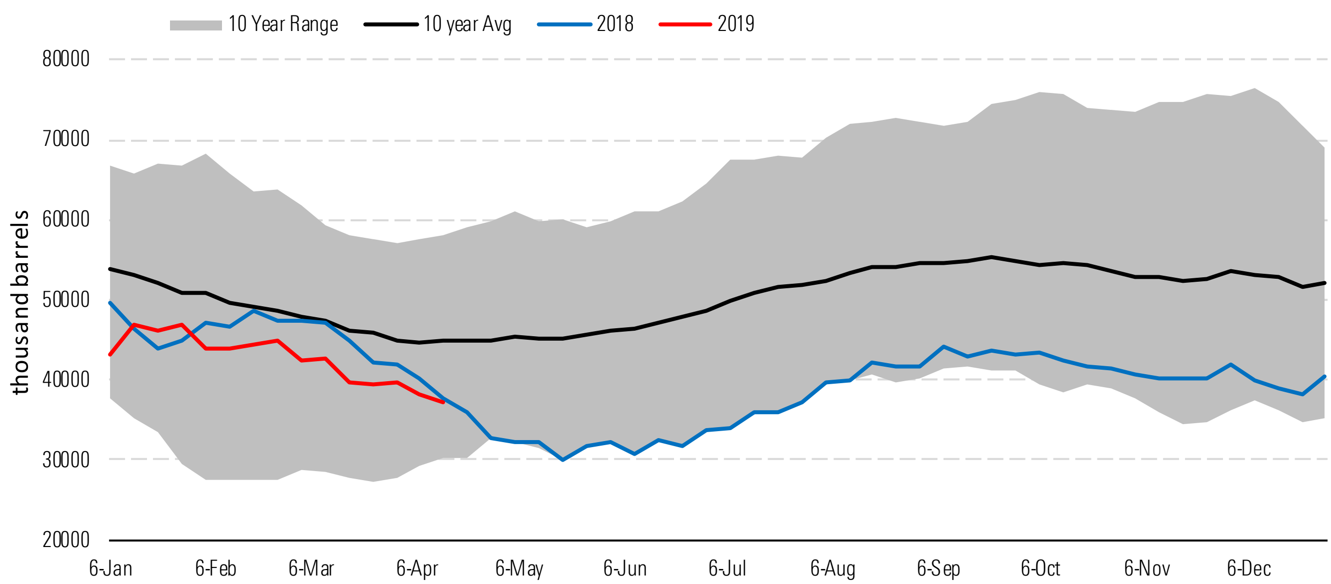
Source: EIA, Morningstar.

Diesel Stocks

The popularity of diesel throughout 2018 and into 2019 can be seen from the equivalent seasonal inventory in Exhibit 2. Diesel inventories bumped along the bottom of the 10-year range from April through December 2018 (blue line) as refiners struggled to meet increased demand. Despite recovering closer to their 10-year average in early January, diesel stocks have declined again since February because of the PADD 1 plant shutdowns. Recently released EIA monthly data shows U.S. diesel demand increased about 6% during 2018, with most of that increase coming from the transportation sector in a booming economy.

Record-low distillate stocks in PADD 1—a pattern repeated throughout the United States—are particularly troubling this year considering expected increased demand in the second half of 2019. That increase is expected because of IMO regulations coming into force on Jan. 1, 2020, that require the use of ultra-low-sulfur fuel oil for bunkers in oceangoing vessels (see our recent March notes Heavy Sour Crude Shortage Disrupts IMO 2020 Response and IMO 2020 Scrubber Payout Extended by Narrow Sulfur Spreads). A major strategy to replace high-sulfur bunkers will be blending existing 1% sulfur fuel oil with enough ultra-low-sulfur diesel to reach the mandated 0.5% sulfur level in bunkers, creating new demand for already stretched diesel supplies.

Exhibit 2 PADD 1 Distillate Stocks

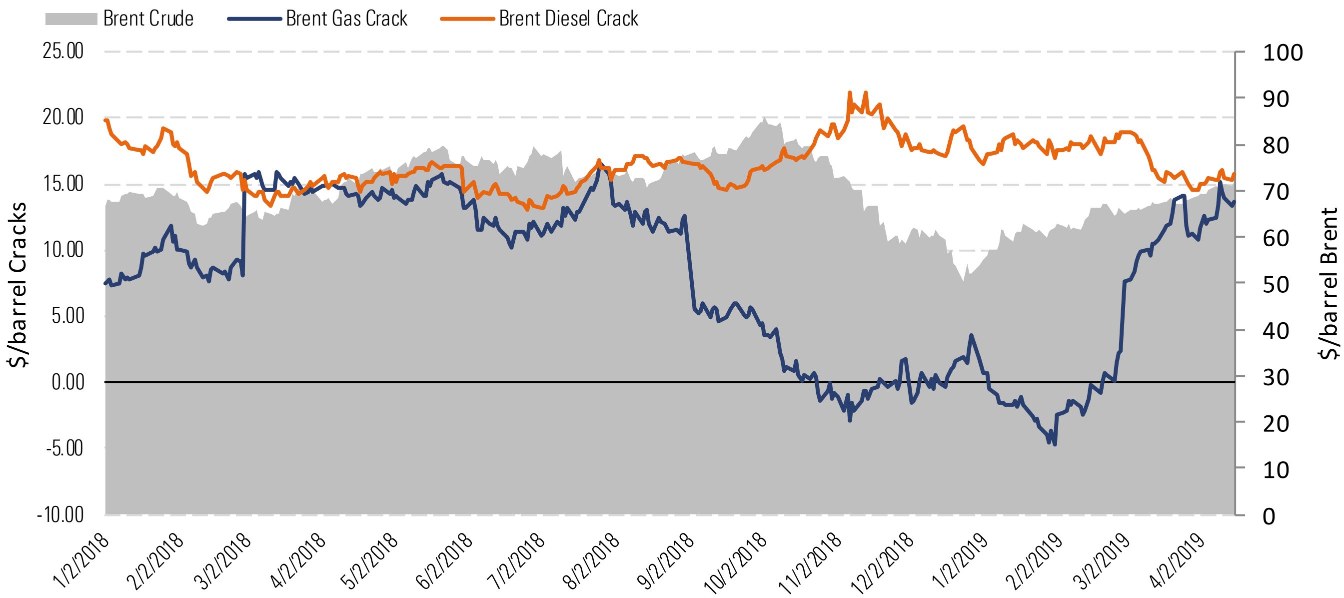


Source: EIA, Morningstar.

Brent Cracks

A fuller understanding of current low gasoline and diesel inventories in PADD 1 can be gleaned from crude and product price history. Exhibit 3 shows daily values for Brent crude (shaded area, right axis) as well as the gasoline crack (gasoline price minus Brent crude; blue line, left axis) and diesel crack (diesel price minus Brent; orange line, left axis) since January 2018. The gasoline and diesel prices are for New York Harbor delivery, and Brent represents typical refining margins for East Coast refiners running imported light sweet crude. Diesel cracks remained robust throughout this period as increased demand kept prices high even when crude crashed between October and December 2018. The opposite is true for gasoline, where growing inventories in the second half of 2018 weighed on prices, reducing the gas crack to negative levels during the fall despite crude crashing in the fourth quarter. The carnage in gasoline margins continued through January 2019 before the February PADD 1 plant shutdowns took their toll on inventories. As of early April, gasoline cracks recovered to parity with diesel in PADD 1, encouraging refiners to increase throughput rates back to 80% of capacity in preparation for the runup to the summer driving season.

Exhibit 3 Brent Crude, Gasoline, and Diesel Cracks



Source: CME Group, Morningstar.

2019 Outlook

With refinery utilization in PADD 1 back up to 80%, we expect some recovery in gasoline and diesel inventories before the summer driving season, although both were still falling during the week ended April 12, according to EIA weekly data. The key challenge for PADD 1 refiners is whether they can replenish stock levels before summer gasoline demand peaks and build buffer inventories to meet additional demand for diesel to replace high-sulfur bunkers in the second half. Unlike 2018, when refiners produced too much gasoline in response to record demand for diesel, refinery configurations this year are likely to be tweaked to produce more diesel components that can be used to blend ultra-low-sulfur bunkers. Those refinery tweaks involve reducing throughput of semifinished gasoil components into secondary units designed to produce gasoline (fluid cat crackers) and increasing the feed to secondary units designed to produce more diesel (hydro crackers). If that change is made on a large scale to favor diesel, the result could be a shortage of gasoline this summer.

Scarcity Pricing?

Although IMO 2020 is a challenge for every refiner worldwide, the outlook for PADD 1 refined product balances is particularly vulnerable. The region's refineries produce only about 30% of the fuels consumed on the East Coast, meaning suppliers rely on pipeline shipments from Gulf Coast refineries and then overseas imports to meet demand. If, as expected, these incremental supplies are rendered tight by increased IMO 2020 demand for diesel and consequent lower output of gasoline, then PADD 1 prices for both transport fuels will strengthen considerably. Although stronger margins will encourage PADD 1 refiners to increase throughput, that may not be enough to alleviate scarcity pricing in the region by the end of the year.

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