
Gulf Coast Distillate Glut Seeks Buyers

Refining recovery depends on clearing surplus.

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Data Sources for This Publication
EIA
CME Group**Struggle to Cope**

A glut of distillate fuels—primarily used to make ultralow sulfur diesel, or ULSD, for road and rail transportation and jet-kerosene for aviation—is clogging up U.S. refining. The congestion results from ongoing weak demand for these products due to lower travel and freight use during the coronavirus pandemic. Refiners are struggling to cope with low distillate consumption while demand for gasoline has returned closer to normal levels. One result is excess distillate inventories nationwide, in particular at the Gulf Coast, where stocks sit 39% above their 10-year average after coming perilously close to tank tops in August according to the Energy Information Administration. This note discusses refiners' strategies to address the distillate glut.

Previously

At the end of last year, impending International Maritime Organization regulations mandating the use of very low sulfur fuel oil, or VLSFO, in marine shipping from Jan. 1, 2020 were expected to divert distillate supplies to meet the new specifications. The IMO 2020 fuel shortage never transpired in early 2020 after refiners produced enough VLSFO to meet shipping demand. A mild winter heating season and the IMO nonevent caused distillate inventories to build and prices to fall by February (see our March note [Early 2020 Refining Boost Hit by Demand Destruction](#)). Then OPEC+ partners Saudi Arabia and Russia fell out over production quotas and began a market share battle in early March just as coronavirus outbreaks prompted worldwide lockdowns to prevent the spread of the disease. The combination of a glut of OPEC crude and rapidly shrinking demand caused crude prices to crash by the end of March and lurch into uncharted negative territory after storage capacity topped out in April. The net result was a miserable second quarter for refiners (see our April note [2020 Refining Armageddon](#) and July follow-up [U.S. Refiners' Worst Second Quarter in a Decade](#)). Although they have retreated since August, persistently high distillate inventories this year are compounding refiners' woes by weighing on product prices and constraining processing levels.

Stockpile

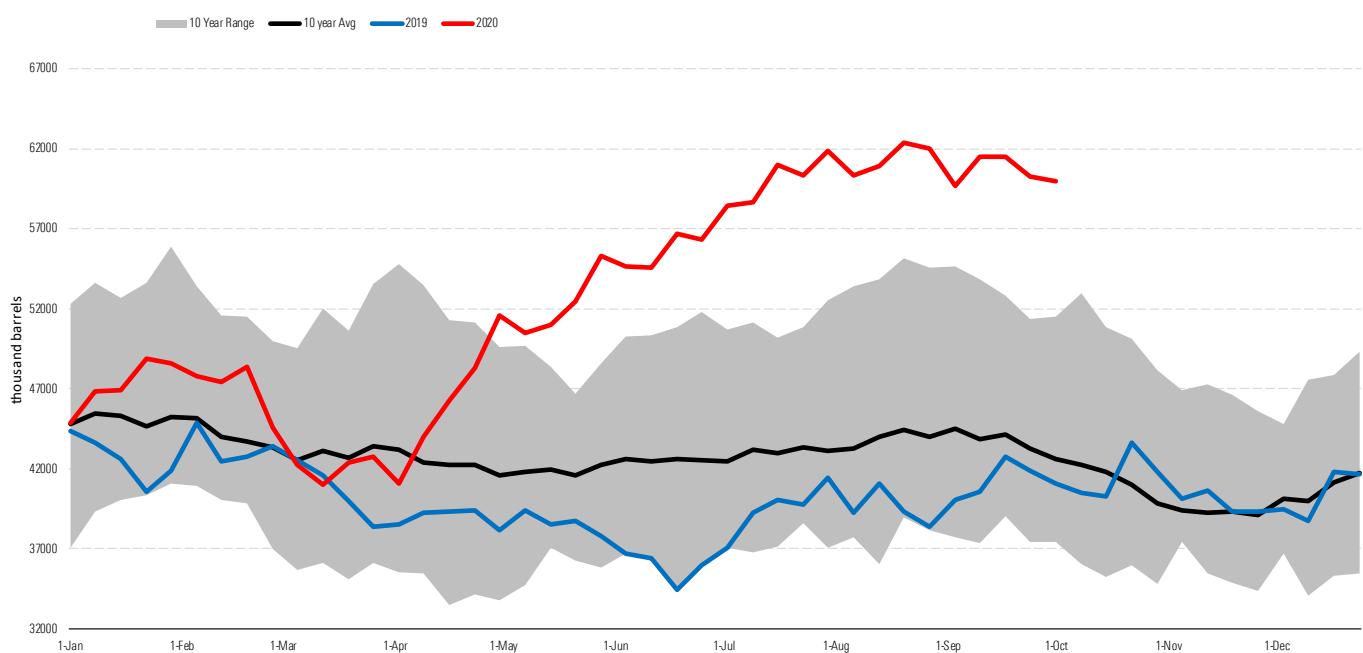
Total U.S. distillate stocks have been in record territory since April according to EIA weekly data and only returned below their seasonal 10-year high at the end of September. Total inventory of 172 million barrels on Oct. 2 was 44 mmbbl higher than this time last year but down about 1.0 mmbbl a week from a peak of 180 mmbbl in early August. Oct. 2 inventory of 172 mmbbl represents 48 days of supply based on implied demand of 3.6 million barrels/day. Summer inventory levels this year matched those normally seen in the run-up to winter. Total U.S. working storage capacity for distillates is 218 mmbbl according to a March 31, 2020 EIA survey, meaning stocks are 79% full as of Oct 2.

Distillate stockpiles vary by PADD district around the U.S. At this time of year inventories are typically building in the Northeast PADD I, where distillate is still used in about 5 million homes for heating. PADD I distillate stocks are unseasonably high at 63 mmbbl as of Oct. 2, 24% above their 10-year average, but well below a 10-year high set in 2010 and 4.0 mmbbl below their recent peak of 67 mmbbl in July. Based on the EIA storage survey, PADD I working distillate capacity of 79 mmbbl is about 80% full at the moment.

Tank Tops

Elsewhere across the U.S. distillate inventories are close to year-ago levels in PADD IV (Rocky Mountains) and close to 10 year-average levels for this time of year in PADD II (Midwest) and PADD V (West Coast). The brunt of the distillate build is in the Gulf Coast PADD III region that encompasses more than half the nation's refining capacity. Exhibit 1 shows a seasonal view of PADD III distillate inventories. The current stockpile sits at 60 mmbbl, which is 16% above the high for the past 10 years and 19 mmbbl higher than this time last year. Gulf Coast inventories have retreated about 2 mmbbl since mid-August when they topped out at 62.4 mmbbl. According to the EIA March survey, total PADD III working storage capacity is 63 mmbbl—meaning that distillate inventories were more than 99% full in August. Such a close shave to actual tank tops seems implausible. In all likelihood there was still breathing room given that estimates of available capacity vary depending on how much noncommercial storage is included and exactly how working storage is estimated. Nevertheless, distillate inventory in PADD III remains unusually high.

Exhibit 1 Seasonal PADD III Distillate Inventory 2010-2020



The PADD III distillate stockpile weighs on refining margins and will restrain crude throughput until the surplus is reduced.

We consider below the remedies for the PADD III distillate glut.

Shut Down

The fastest way to reduce distillate inventories is to stop making it. However, distillate isn't made in a vacuum, its refined from crude oil that also produces gasoline and other products. Since gasoline stocks aren't as robust as distillate, refiners still have to satisfy driving demand. Processing crude to make gasoline produces distillate as well—adding to the glut. Refiners have some flexibility to maximize gasoline but it's an inexact science and varies with crude type and refinery configuration. The distillate fraction of crude oil is mostly blended into ultralow sulfur diesel, or ULSD, for road and rail transport. Another 10% of typical U.S. refinery yield is jet kerosene for air transport. Amid coronavirus fears, air travel demand has cratered, causing refiners to add jet kerosene to the distillate yield, exasperating the glut. Refiners continue to process less crude than normal but in doing so they run the risk of running down gasoline stocks to fix the distillate surplus. The cycle of low runs and low margins is hemorrhaging refiners' cash flow.

Storage

Aside from the real threat of running out of capacity, placing excess distillate into commercial storage is currently the most attractive strategy for refiners. That's because the ULSD market is in a contango condition where prices in the future are higher than today. The October 2021 CME Nymex ULSD futures contract settled at a \$5.72/barrel contango over prompt November 2020 delivery on Oct. 8. The equivalent 12-month contango for Gulf Coast ULSD swaps was \$5.28/barrel on the same day. Refiners with access to storage could sell October 2021 ULSD futures contracts and store the product until then for delivery. The strategy requires access to storage capacity and that incurs a cost, but selecting a shorter period and timing the contango trade could improve returns.

As we discussed above, PADD III distillate storage is almost full. That increases storage costs and the risk contango profits won't cover the cost of storage. An alternate strategy is to ship distillate from the Gulf Coast to the East Coast and store it there. The advantage is that storage capacity is greater in PADD I and only 80% full. Refiners can also expect demand for distillate to recover during the coming winter, pushing local prices higher in the Northeast heating oil market by January and February 2021. Shipping costs by pipeline are about \$2/barrel and storage would only be for a shorter period.

Local Sales

Domestic demand for distillate in PADD III represents about 22%-25% of U.S. consumption according to EIA data. Although local sales haven't suffered significantly during the pandemic, growth is usually associated with increased oil and gas activity that won't happen until crude prices recover. Retail and wholesale price data indicate that refiners and distributors aren't discounting diesel heavily to individual or fleet truck drivers. At the retail level diesel prices are higher than gasoline across the country despite

being lower than gasoline at the refinery gate and wholesale levels. Drivers are used to paying more for diesel and distributors are reluctant to sacrifice that premium for increased sales at lower prices.

Bunker

One potential home for the ULSD glut is the VLSFO marine bunker fuel market. Shipping fuel is blended from the bottom of the barrel and almost always cheaper than refined products like diesel. Since the IMO regulatory change this year requiring lower sulfur fuel oil, blending ULSD with heavier fuel oil to make the mandated VLSFO for marine use is one option for suppliers. It only makes sense if ULSD is cheaper than VLSFO. That's not usually the case but the distillate glut has upended that norm since mid-August (Exhibit 2). Gulf Coast ULSD traded at an average \$1.49/barrel discount to VLSFO between Sep. 1 and Oct. 8, 2020, opening up a window to blend distillate into ship bunkers. There is no evidence of this happening on a large scale due to low bunker demand at the moment, but it remains a possibility while the arbitrage is open.

Exhibit 2 Gulf Coast ULSD and VLSFO Prices



Source: CME Group, Morningstar.

Exports

Traditionally diesel exports have driven incremental distillate sales from Gulf Coast refineries. Exports from PADD III more than doubled from 0.5 mmb/d in 2010 to 1.1 mmb/d in 2019. That period of growth ended during the second quarter this year when exports fell 23% compared with 2019. Overseas sales recovered in July but are constrained by the global scale of the distillate glut and ongoing low demand in the Gulf Coast's traditional Central American market.

Power Burn

A less obvious home for surplus distillate is the power market. Nationwide there are 3,647 generators that can burn oil, with nameplate capacity of 37 gigawatts according to a 2018 EIA survey. These generators consumed 20,430 mbbl of oil or 56 mb/d in 2019, including commercial and industrial plants. During winter 2019-20 oil-fired generation accounted for just 0.2% of U.S. energy production due to its high cost and low plant efficiency. The New England power market is the most reliant on oil generation if supplies of gas are interrupted or constrained.

Realistically plant economics count against any increase in oil-fired generation. According to EIA data, typical diesel generation plants have an operating efficiency of 28.3%—meaning that only 28.3% of the heat generated is converted to electricity. That compares with about 45% efficiency for a modern natural gas combined-cycle plant. The cost to generate one megawatt-hour of electricity in a gas plant is \$18.95/MWh with gas at \$2.49/million British thermal units. The equivalent cost for a diesel plant is \$92.74/MWh based on \$1.15/gallon ULSD. Diesel prices would have to fall an unlikely 80% to \$0.23/gallon to compete with natural gas and divert surplus diesel to power plants.

Hard Winter

A cold winter in the Northeast could easily soak up the U.S. distillate glut. As mentioned earlier, Gulf Coast refiners can ship distillate to the East Coast to benefit from higher winter prices and the contango market. A colder-than-usual winter pulls distillate supplies into the Northeast from other regions and would help to burn up the Gulf Coast surplus. Cold weather is “virus-proof” because it stimulates heating demand regardless of lockdowns or stay-at-home policies. Unfortunately, current long-term forecasts are predicting a warmer-than-usual winter in the Northeast with best hopes for a colder snap waiting until March.

Vaccine Relief

This year’s combination of low demand and low prices has battered the U.S. refining industry. The distillate glut is a stumbling block to recovery. Contango storage strategies offer the best hope for refiners to profit from the situation but don’t reduce the stockpile clogging up their operations. The traditional export market is closed by low demand and less obvious alternatives like blending into VLSFO aren’t having a material impact on the surplus. Wholesalers and retailers are, so far, reluctant to slash diesel prices to the domestic truck market. Although the stockpile is falling slowly, forecasts for a mild start to winter don’t offer hope for increased heating demand. For the moment, like many businesses in the pandemic, refiners wait for vaccine relief. ■

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