Can LOOP Ever Be a Gulf Coast Cushing?  
Searching for a sour crude benchmark.

Hurdles to Overcome

On April 4, 2017, Matrix Markets held its 26th successful monthly auction for storage contracts at the Louisiana Offshore Oil Port crude storage hub. The auction sold 5,900 contracts bestowing rights to store 1,000 barrels of crude at LOOP for one month between May 2017 and March 2018, for prices averaging $0.20/barrel. The LOOP forward storage contract is the first of its kind and is part of a concerted effort in the past two years to increase sour crude trading at the Louisiana Gulf Coast hub. The LOOP storage contract initiative and parallel efforts to establish a widely accepted sour crude benchmark at LOOP must overcome several hurdles to match the success of rival storage hub Cushing in Oklahoma, home of the CME West Texas Intermediate futures contract.

A big part of the winning formula for Cushing’s success as a trading hub is its 77 million barrels of commercial storage capacity. And crude storage availability is no less critical on the Gulf Coast these days. On March 31, 2017, Gulf Coast crude inventory reached an all-time high 280.9 million barrels—a level estimated by the Energy Information Administration at 86% of usable capacity in the region. Gulf Coast crude storage demand has increased steadily since 2013 as domestic production from the shale boom started to reach the Gulf Coast in significant volumes. The storage buildup accelerated after crude prices crashed at the end of 2014, creating a contango market structure where future prices are higher than today, making crude storage a potentially lucrative proposition (see our May 2016 note Heating Oil Contango for more on contango). The two-year-plus contango market has increased demand and costs for storage throughout the U.S., but particularly at the Gulf Coast, which is home to more than half the nation’s refining capacity.

The result has been a storage infrastructure build-out at the two Gulf Coast refining centers in Texas and Louisiana, as well as the surrounding region, including the Caribbean (see our July 2016 note Caribbean Storage). In Texas, the build-out is concentrated in the Houston region (see our February 2017 note Houston Storage Infrastructure). In Louisiana, commercial crude storage has expanded at the St. James hub, as well as at the largest crude storage facility in the region, located inland from the LOOP terminal at Clovelly. This note is the first of a two-part series looking at LOOP’s development as a trading and pricing hub on the Gulf Coast. In part two, we will look at the LOOP storage contract and the LOOP sour crude benchmark. In this note, we cover recent LOOP infrastructure developments, as well as previous attempts to develop a Gulf Coast sour crude contract.
Well Connected
LOOP terminal is the nation's only deep-water tanker port and consists of three mooring buoys located 18 miles offshore in 110 feet of water in the Gulf of Mexico. These buoys can accommodate “very large” and “ultra-large” crude carriers, or VLCCs and ULCCs, that hold between 1 million and 3 million barrels of oil. The LOOP terminal unloads these huge tankers into a 25-mile subsea pipeline to the Clovelly storage facility. Clovelly storage has 71 million barrels of nameplate capacity, consisting of 8 underground salt dome caverns and 21 above-ground tanks. The terminal originally just handled overseas imports from tankers, but following the expansion of offshore Gulf of Mexico and domestic crude production, LOOP now receives more than half its supply of over 1 million barrels/day from domestic pipelines and tankers. The storage at Clovelly is connected by pipeline to approximately 2.4 million barrels of downstream refining capacity in the Louisiana Gulf Coast region and via the LOCAP connection to St. James, Louisiana, from where crude can be delivered to Midwest refineries on the Capline pipeline (see Exhibit 1). Refiners rely on LOOP storage to buffer large incoming streams of crude from tankers, as well as offshore Gulf of Mexico production. The terminal stores crude until it is needed downstream and then blends and delivers it in smaller batches for processing.

Exhibit 1 LOOP Connectivity

Although LOOP has massive storage—second only to the Cushing, Oklahoma, hub that boasts 77 million barrels of capacity—and offers significant commercial space to refiners and traders, it has historically operated primarily as a distribution facility rather than a trading and pricing hub. To develop into the kind of market hub that operates at Cushing, LOOP needs to develop broad market access and its own benchmark crude price. Several initiatives to that end have been under way over the past two years, and we’ll get to these in Part 2 of our analysis.

First, we’ll look at why LOOP has been slow to develop a wider role beyond crude distribution.

Increased Inbound Connections
In its original incarnation as an import terminal, LOOP was just a one-way distribution center, with a mix of incoming crude grades being stored for onward shipment to refineries. Crude could only be delivered to the facility by tanker and typically came in large batches. This one-way distribution system persisted
once offshore Gulf of Mexico crude began to be delivered to LOOP storage, direct via pipeline from the Mars, Amberjack, and Thunder Horse fields. Crude from these streams could be stored at Clovelly but was then distributed out to refineries throughout the Gulf Coast region and beyond. Any trading activity was limited to those participants owning incoming crude, as well as those with access to lease storage at LOOP, making it a purely physical market that catered to operational needs.

Once shale crude began to reach the Louisiana Gulf Coast in significant volumes in 2013 and 2014, LOOP made changes to accommodate the surge in domestic production. First, the port adapted one of the offshore buoys to handle smaller U.S. flag Jones Act tankers delivering domestic crude from the South Texas Eagle Ford Basin. Eagle Ford crude was shipped along the Gulf Coast from Corpus Christi, Texas, to Louisiana by tanker in the absence of adequate pipeline capacity on this route. Light Eagle Ford shale was then typically blended with heavier medium-sour Gulf of Mexico grades to produce a crude that met the specifications for regional benchmark Light Louisiana Sweet. This trade flourished until the end of export regulations in December 2015 removed crude price differentials between Texas and Louisiana (see our August 2016 note Gulf Coast Light Crude).

In 2014 an important outbound pipeline from Clovelly—the Shell Midstream Partners-owned Zydeco system (previously known as Ho-Ho) — was reversed. The Ho-Ho system shipped crude from Clovelly to Houston via the Shell Houma terminal, and provided a conduit for GOM supplies to reach the Texas Gulf Coast refining center. The Ho-Ho reversal, renamed Zydeco, provided the first onshore route into Clovelly storage for incoming domestic crude. Later in 2016, Shell redesigned the Zydeco system at Houma to allow crude from the offshore Poseidon field to flow into Clovelly as well.

One unfortunate impact was that the Ho-Ho reversal removed a significant outbound option from Clovelly to the Texas market. Shell had hoped to replace the original eastbound Ho-Ho with a larger pipeline called Westward Ho, but failed to attract enough shippers to the project in 2015. At the time the deluge of crude arriving in Houston from shale fields in Texas, North Dakota, and the Rockies suppressed any appetite for offshore barrels to flow east from Clovelly.

Still, these post-shale changes have increased the number of inbound routes to LOOP storage and therefore improved the hub’s deliverability, as well as the number of potential market participants.

**Sourly Lacking**

Another gap in LOOP’s arsenal as a trading hub is the lack of a widely accepted benchmark price for crude delivered into storage at Clovelly. Such a benchmark encourages trading, as well as participation from the financial community. This in turn increases the liquidity and volume of transactions, making it easier to find counterparties for a trade. If the majority of trades are priced using price differentials to a benchmark, crude grade, fungibility, and interchangeability improve. This allows for easier trading of different crude grades based on their quality relative to the benchmark.

Refinery demand on the Gulf Coast is predominantly for medium-sour crude grades delivered from offshore and overseas. The average crude barrel refined on the U.S. Gulf Coast in 2016 was a medium-
sour barrel with API gravity of 31.3 degrees and sulfur content of 1.49%, according to EIA data. Most Louisiana Gulf Coast refineries are configured to consume a diet of imported medium-sour Middle East crudes or equivalent offshore GOM grades. The obvious benchmark crude for the region would therefore be a medium-sour grade. But there has been a mixed history of efforts to establish such a benchmark. Most domestic crude is traded on the basis of WTI, but the CME benchmark is a light sweet grade delivered in West Texas, which is not suitable because its pricing frequently disconnects from Gulf Coast sour crude.

Back in 2006, price reporting agency Argus Media launched the Argus Sour Crude Index, or ASCI, as a benchmark for Gulf Coast sour crude based on daily assessments for Mars, Poseidon, and Southern Green Canyon GOM grades.

Exhibit 2 shows prices for ASCI and its largest component Mars over the past year. Since 2010, Saudi Arabia, Iraq, and Kuwait have used the ASCI benchmark in their price formulas for U.S. Gulf delivery. The ASCI index has the advantage of including crudes delivered in Louisiana (Mars and Poseidon) and Texas (Southern Green Canyon) but has failed to be accepted as the default sour benchmark by the market. CME Group and ICE futures contracts based on ASCI have had only limited success. In 2009, Platts launched a rival benchmark “America’s Marker Crude,” but this has failed to eclipse ASCI or gain wider acceptance. The largest GOM sour crude stream, Mars, is the most widely traded but does not qualify as a good benchmark candidate on its own because production all flows into LOOP on one pipeline and its ownership is too concentrated in the hands of majors Shell and BP.
Next Time
In Part 2 of this analysis, we’ll discuss the development and performance of the LOOP sour crude storage contract, along with the LOOP sour crude benchmark price now being assessed by Platts and Argus, which is also listed as a CME futures contract.
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