Capline Empties as Louisiana Crude Market Evolves
Pivot toward the coast and exports.

Morningstar Commodities Research
April 3, 2018

Sandy Fielden
Director, Oil and Products Research
+1 512 431-8044
sandy.fielden@morningstar.com

Data Sources for This Publication
U.S. Energy Information Administration
Louisiana Department of Natural Resources
U.S. Customs
Bureau of Ocean Energy Management
To discover more about the data sources used, click here.

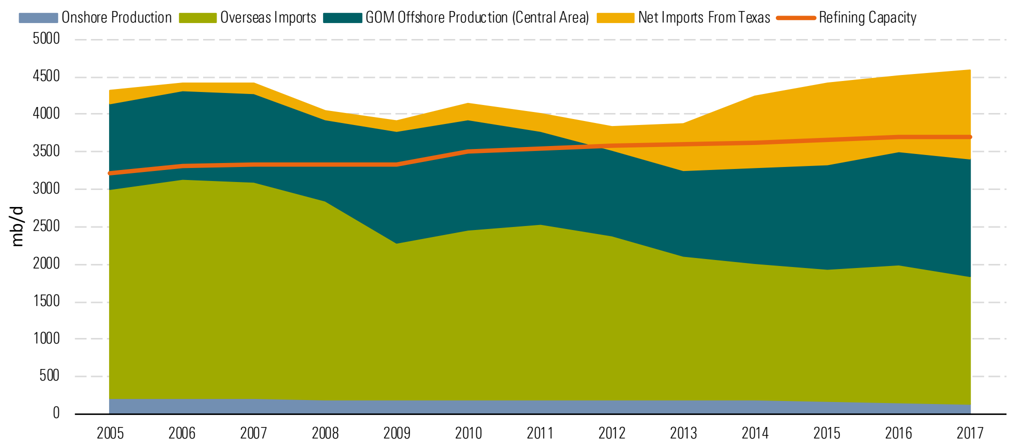
Replumbing the Eastern Gulf

February volumes on the 1.2 million barrel/day (mmb/d) Capline pipeline from St. James, Louisiana to Patoka, Illinois were just 22,000 barrels/day, up from a low of below 1 mb/d in January but still significantly below the average of 291 mb/d during 2017. Declining Capline flows are a symptom of changing crude dynamics in the eastern Gulf Coast region that reflect the replumbing of the domestic pipeline system to distribute shale production. Capline was built as a conduit for crude imports to reach Midwest refineries that are now being fed by domestic and Canadian barrels delivered from the north. With most domestic refineries processing as many barrels of light sweet shale crude as they can handle, surplus production is headed to export terminals on the Gulf Coast. This note—first of a three-part series —looks at changing crude flows in Louisiana.

Louisiana Crude Supply/Demand

Exhibit 1 shows a summary of Louisiana's crude oil balance between 2005 and 2017. This is not a perfect balance because most of the available data is for the Gulf Coast region, but general trends can be observed. Onshore Louisiana crude production (purple layer) remained flat over the period between 140 and 200 mb/d according to the Energy Information Administration. Crude imports into Louisiana (light blue) fell from an average 2.8 mmb/d in 2005 to an average 1.7 mmb/d in 2017 according to U.S. Customs data. Falling imports have been replaced by growing output from the Central Gulf of Mexico (the offshore region that ships most of its crude to Louisiana) up from 1.1 mmb/d in 2006 to 1.6 mmb/d in 2017 (green shading—according to the Bureau of Ocean Energy Management) and growing net imports from Texas up from 0.2 mmb/d in 2005 to 1.2 mmb/d in 2017 according to the Louisiana Department of Natural Resources (orange shading). Over the same period, Louisiana refining capacity increased from 3.3 mmb/d in 2005 to 3.7 mmb/d in 2017 according to EIA (red line). The surplus of Louisiana crude supplies over state refining needs (everything above the red line) is largely exported to other refineries in the Midwest via Mississippi and Arkansas, including shipments on the Capline pipeline. Not shown on the chart, crude exports from Louisiana ports were just a trickle before federal restrictions were lifted in late 2015 but have grown since, averaging 41 mb/d in 2016 and 108 mb/d in 2017. We expect Louisiana's crude exports to increase significantly as more shale crude comes into the state from Texas and North Dakota and even Canadian barrels seek overseas markets.

Exhibit 1 Louisiana Crude Supply/Demand



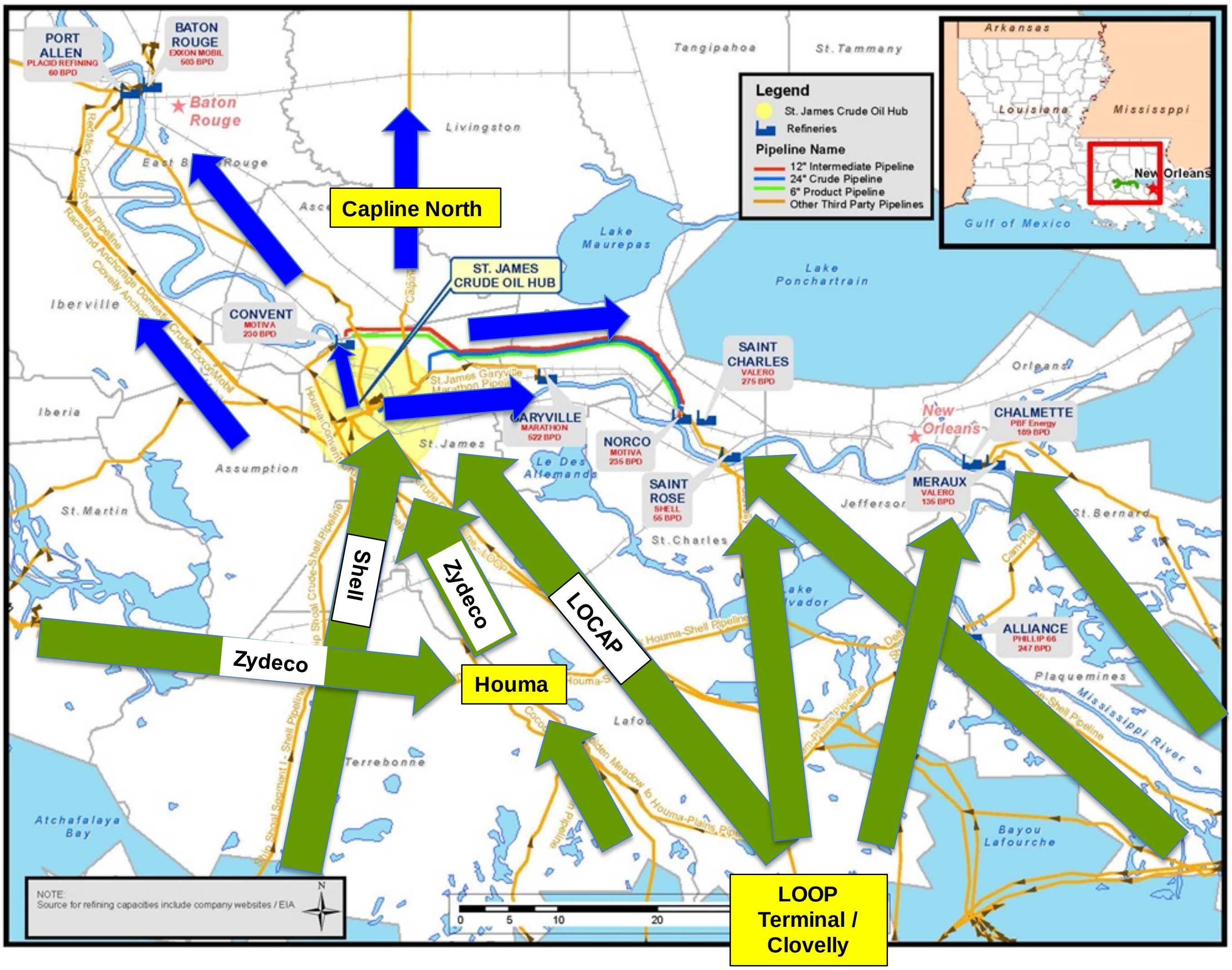
Source: EIA, LDNR, BOEM, U.S. Customs, Morningstar

Within Louisiana, most crude supplies have traditionally entered the state from the Gulf Coast as imports into the Louisiana Offshore Oil Port terminal (for detail on LOOP see our April 2017 note "Can LOOP Ever Be a Gulf Coast Cushing?") or by pipeline from offshore Gulf of Mexico production into LOOP's Clovelly storage terminal as well as a number of other onshore pipeline terminals across southern Louisiana. Onshore Louisiana production is also gathered at these terminals. The green arrows in Exhibit 2 show the general direction of these crude movements. Imports from Texas either come from Houston to Houma, Louisiana via the 375 mb/d Shell Zydeco pipeline or are shipped to LOOP and other ports by barge and tanker. Since last June, section one of the Phillips 66/Energy Transfer Bayou Bridge pipeline has delivered crude from Nederland, Texas to refineries in the Lake Charles region of Western Louisiana (not shown on the map). The rest of Louisiana's refineries are dotted along the Mississippi River from Belle Chase to Baton Rouge (they are hard to see on the map, but there's a larger version here; scroll to the bottom of the page). Crude is delivered to these refineries by barge or by pipelines via LOOP and Clovelly or direct from offshore production platforms. Six refineries are fed directly from the St. James pipeline, storage and trading hub (yellow shaded area on the map). The 1.7 mmb/d LOCAP pipeline links LOOP and Clovelly to Capline at St. James.

St. James Hub

St. James Parish, Louisiana is located on the Mississippi River 60 miles upriver from New Orleans and about 60 miles northwest of Clovelly. The parish developed as an important crude trading hub for two reasons. First, it serves as a staging point for storing and blending crude delivered to six Mississippi River refineries that we will detail in this report (blue arrows on the map). Second, it is the start point for the Capline pipeline that delivers crude north to refineries in the Midwest. St. James has many storage terminals, connected to pipeline and rail transportation as well as docks that can accommodate barges and tankers up to Aframax size. Crude storage at the hub totaling over 38 million barrels is a mix of merchant capacity such as Plains All American's 14 million barrels and Nustar Energy's 10 million barrels as well as refiner tanks owned by Shell, ExxonMobil, Marathon, and Ergon, and over 8 million barrels of pipeline operational capacity owned by Capline and LOCAP.

Exhibit 2 Louisiana Crude Flows



Source: Morningstar, SemGroup

The six refineries fed directly by pipeline from St. James are as follows:

- ExxonMobil's 503 mb/d Baton Rouge, Louisiana and Delek USA's 80 mb/d Krotz Springs, Louisiana refineries served by Exxon's Clovelly to Anchorage North Line pipeline
- Marathon's 543 mb/d Garyville, Louisiana refinery served by Marathon's 630 mb/d St. James to Garyville pipeline
- Shell's 228 mb/d Convent, Louisiana refinery and Placid Refining's 75 mb/d Port Allen, Louisiana refinery served by Shell's 240 mb/d Redstick pipeline

- Shell's 226 mb/d Norco, Louisiana refinery served by SemGroup's 24-inch Maurepas Pipeline from St. James to Norco

The St. James hub receives inbound crude from LOOP and Clovelly via LOCAP as well as three additional pipeline systems. The first of these is the Shell Midstream Partners owned and operated Zydeco pipeline. As mentioned earlier, this pipeline, previously known as Ho-Ho, runs between Houston, Texas and Shell's Houma, Louisiana terminal where one branch continues to Clovelly and a 260 mb/d lateral runs north to St. James, delivering crude from Texas. A second Shell pipeline, the 390 mb/d Shipshoal system, delivers Gulf of Mexico and onshore Louisiana crude to St. James from the Gibson terminal. The third pipeline is the ExxonMobil North Line system bringing offshore heavy Louisiana sweet crude into St. James. By the end of 2018, Energy Transfer and Phillips 66 expect to complete the second leg of their 480 mb/d Bayou Bridge pipeline from St. Charles, Louisiana to St. James that will allow North Dakota Bakken crude delivered to Nederland, Texas on the DAPL pipeline (see our April 2017 note "Why DAPL Hurts Crude Prices") to reach St. James.

The next note in this series looks at ongoing changes to Louisiana crude flows and how the demise of Capline is changing the dynamics of eastern Gulf Coast pricing.

About Morningstar® Commodities Research™

Morningstar Commodities Research provides independent, fundamental research differentiated by a consistent focus on the competitive dynamics in worldwide commodities markets. This joint effort between Morningstar's Research and Commodities & Energy groups leverages the expertise of Morningstar's 23 energy, utilities, basic materials, and commodities analysts as well as Morningstar's extensive data platform. Morningstar Commodities Research initially will focus on North American power and natural gas markets with plans to expand coverage of other markets worldwide.

Morningstar, Inc. is a leading provider of independent investment research in North America, Europe, Australia, and Asia. The company offers an extensive line of products and services for individuals, financial advisors, and institutions. Morningstar's Commodities & Energy group provides superior quality market data and analytical products for energy data management systems, financial and agricultural data management, historical analysis, trading, risk management, and forecasting.

For More Information

+1 800 546-9646 North America
+44 20 3194 1455 Europe
commoditydata-sales@morningstar.com

MORNINGSTAR®

22 West Washington Street
Chicago, IL 60602 USA