Exxon Bets on Downstream U.S. Returns

Beaumont refinery expansion complements Permian investment.

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Data Sources for This Publication
U.S. Energy Information Administration
Texas Railroad Commission

To discover more about the data sources used, click here.

From Russia to Texas

A couple of weeks ago, we learned that ExxonMobil has abandoned a high-profile oil and gas Arctic exploration joint venture with Russian energy behemoth Rosneft. During an analyst presentation last week, the company instead touted new investments at home—in the Permian Basin and in refinery expansion on the Gulf Coast. According to Reuters, that investment includes potentially doubling throughput capacity at its 363 thousand barrel/day, or mb/d, refinery in Beaumont, Texas, although the company has not yet provided specifics. Such a planned expansion represents a major commitment to U.S. refining and comes on top of a $6 billion investment to triple crude output from the West Texas Permian Basin. This note looks at the existing Beaumont operation as well as sources of new feedstock and refined product demand to support the plant’s expansion.

Largest U.S. Refinery

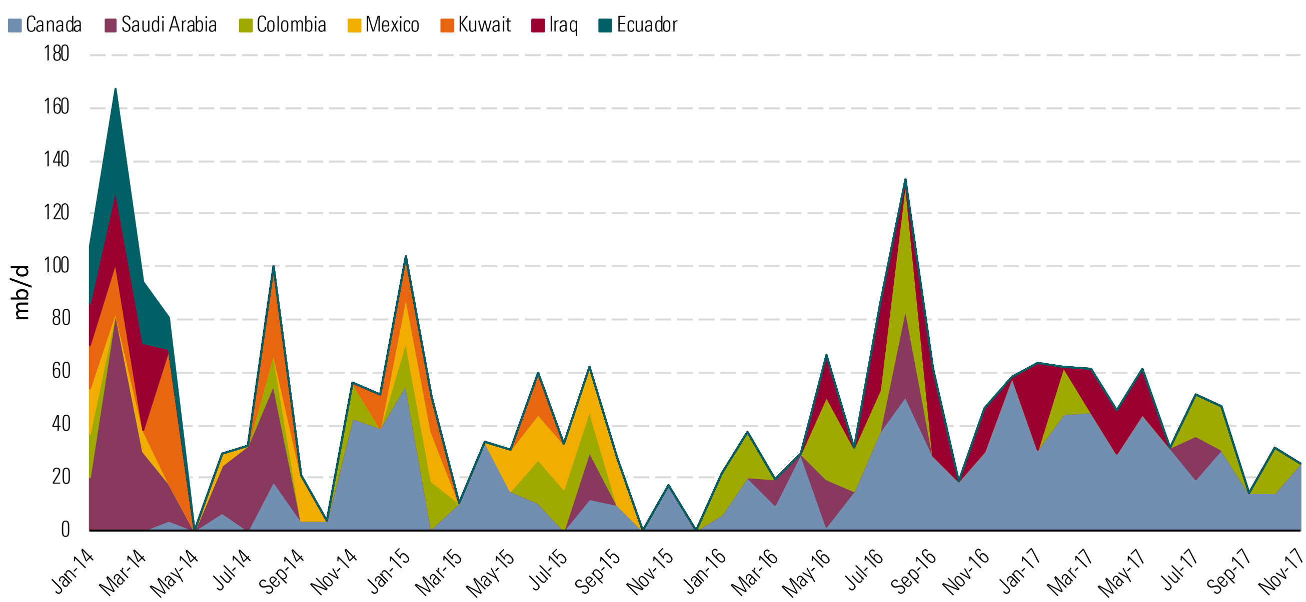
ExxonMobil is apparently looking to expand Beaumont capacity in the form of a new crude distillation unit to process an additional 300-400 mb/d. Such an expansion would make Beaumont the largest refinery in the U.S., overtaking the nearby Saudi Aramco-owned 635 mb/d Motiva Port Arthur, Texas, refinery, which itself underwent a $10 billion expansion in 2013 to add 325 mb/d. The proposed Beaumont expansion represents significant new investment in the domestic refining sector by a firm that sold its interest in two refineries in Louisiana and California to PBF Energy in 2015 and 2016, respectively.

The existing Beaumont refinery can process up to 363 mb/d of crude feedstock. An expansion in 2016 added 20 mb/d of light crude processing capacity, and a similar project is expected to add 40 mb/d this year. The refinery is situated next to two chemical plants (an ethylene cracker and a polyethylene plant) as well as a specialty lubricants facility. Beaumont is one of four refineries in the Beaumont/Port Arthur region on the Texas/Louisiana border that together have over 1.5 mmb/d capacity. The refinery is part of ExxonMobil's fleet of five U.S. refineries, concentrated at the Gulf Coast along with the 561 mb/d Baytown plant in Houston and the 503 mb/d plant in Baton Rouge, Louisiana. Outside the Gulf Coast, ExxonMobil operates a 239 mb/d plant in Joliet, Illinois, and a 62 mb/d plant in Billings, Montana.

Crude Diet

The complex Beaumont refinery is currently equipped to process a mixture of heavy sour and light sweet crudes. Data from the U.S. Energy Information Administration indicates how the refinery’s crude import diet has evolved over the past four years with a reduced dependence on supplies from Mexico, Colombia, and the Middle East and an increase in Canadian heavy crude (Exhibit 1). The volume of imports delivered to Beaumont fell from an average 213 mb/d in 2012 to an average 43 mb/d in 2017 as Beaumont processed more domestic crude in response to surging shale production. Although the precise crude diet is not publicly available, pipeline reports to the Railroad Commission of Texas indicate that an increasing volume of supplies were delivered to Beaumont via the Sunoco Logistics Nederland, Texas, terminal over the past four years. This suggests that more West Texas Intermediate Permian crude is being processed at Beaumont (delivered to Nederland on Sunoco's Permian Express 2 pipeline). It is also likely that the Beaumont refinery is processing more offshore Gulf of Mexico medium sour Southern Green Canyon crude delivered into Nederland via the Genesis Energy CHOPS pipeline. The increase in Canadian imports during the past two years matches increased shipments into Beaumont via Enterprise Products Partners crude pipeline from the ECHO terminal in Houston, Texas. Those barrels probably come into Houston on the Seaway pipeline.

Exhibit 1 Crude Imports To ExxonMobil Beaumont



Source: EIA, Morningstar

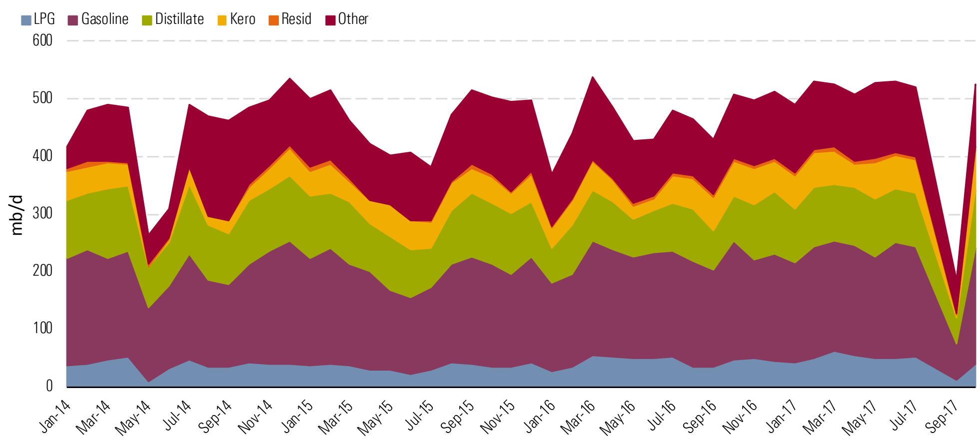
Refinery Performance

Texas RRC reports show that the Beaumont refinery ran at about 81% of nameplate capacity on average during 2016, which was 7% below the EIA average for Texas Gulf Coast refineries. In 2017 through November, Beaumont ran at 87.4% of capacity, or just below the average 87.7%, despite being shut down by Hurricane Harvey during September. Exhibit 2 shows monthly average product output reported to TRCC since January 2014. Liquid petroleum gas (propane and butane) and other products, including lubricants, petrochemical feedstock, and naphtha, make up about 35% of output. These are likely used as feedstock for the adjacent chemical and lubricant plants. The other products are transport fuels, namely gasoline (40%), distillate (mostly diesel, 21%), and jet kerosene (11%). Transport fuels from the Beaumont refinery are mostly delivered into ExxonMobil's retail networks in Texas, Florida, and

Louisiana. Like most Gulf Coast refineries, Beaumont has also increasingly served the growing refined product export market in recent years. TRCC records show regular monthly shipments of a million barrels of gasoline to Mexico as well as diesel exports to Brazil and China.

Plant profitability is hard to estimate because of its integration with the adjacent chemical and lubricant facilities. However, based on product yields and Gulf Coast prices, we estimate that plant margins would have averaged about $11.15/barrel based on processing WTI crude over the past four years and $14.90/barrel processing Gulf of Mexico medium sour Mars crude.

Exhibit 2 ExxonMobil Beaumont Refined Product Output



Source: Texas RRC, Morningstar

Expansion Plans

Aside from the investment cost of almost doubling the size of the Beaumont refinery, ExxonMobil needs to secure access to reliable crude supplies as well as markets for the resulting refined product output. The company's recent investment announcements provide strong clues about its strategy for solving these challenges.

Permian Play

As far as crude supplies, we need look no further than the company's plans—announced in January 2018—to triple daily production to more than 600 mb/d of oil equivalent from its operations in the Permian Basin by 2025, providing 400 mb/d of feedstock for a Beaumont expansion. This increase in Permian output is made possible by ExxonMobil's $6 billion acquisition of premium Permian acreage from the Bass companies in 2017. ExxonMobil also purchased a crude terminal in Wink, Texas, close to Delaware and Midland basin production in the Permian to help gather production for transport to the Gulf Coast. Intriguingly, midstream operator Energy Transfer Partners announced in February that it is considering a new crude pipeline from the Permian to Nederland that could meet ExxonMobil's transport needs. Aside from the Permian, the Beaumont plant is ideally situated to tap Bakken crude delivered to Nederland on the DAPL pipeline as well as Canadian crude on the TransCanada Marketlink.

Who Will Buy?

ExxonMobil faces a more complex challenge downstream of the refinery expansion: finding a market for 300 mb/d of refined products. With U.S. domestic demand basically static in recent years and the Gulf Coast region crowded with competitor refineries, ExxonMobil will need to look overseas for transport fuel markets. To this end, the company's push into the downstream Mexico market provides a good indication of its strategy. We have previously described the impact of Mexico's energy market reforms designed to open up Mexico's downstream transport fuel infrastructure to outside competition (see our May 2017 note "Mexican Downstream Opportunity For U.S. Refiners"). ExxonMobil is one of several U.S. refiners to invest, including Andeavor, Valero, and BP. The company opened its first Mexican retail gas station in December 2017 and plans to open another 50 by the end of March 2018. To overcome the slow unwinding of Pemex's monopoly over fuel delivery infrastructure, ExxonMobil has partnered with Kansas City Southern Railroad and Watco to secure storage at a private terminal in San Luis Potosi in central Mexico. In December, ExxonMobil delivered shipments of gasoline and diesel into Mexico that were loaded onto unit trains at the Jefferson Energy terminal in Beaumont. Finding a market for 300 mb/d of refined products requires searching farther than Mexico, but refining woes in many Latin American countries have resulted in continued growth for U.S. exports.

Downstream Search

Assuming ExxonMobil's expansion of the Beaumont refinery goes ahead, it confirms the company's renewed focus on U.S. production and refining. This investment signals a new phase in the evolving U.S. crude-oil market. With production records being smashed and exports regularly exceeding 1 million barrels a day, attention now turns to refineries in the search for downstream returns.

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