Should DAPL Shippers Have Stayed on The Rails?

Brent premium favored East Coast economics after Harvey.

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Data Sources for This Publication
U.S. Energy Information Administration
CME Group
Texas Railroad Commission
To discover more about the data sources used, click here.

Pipeline Commitments

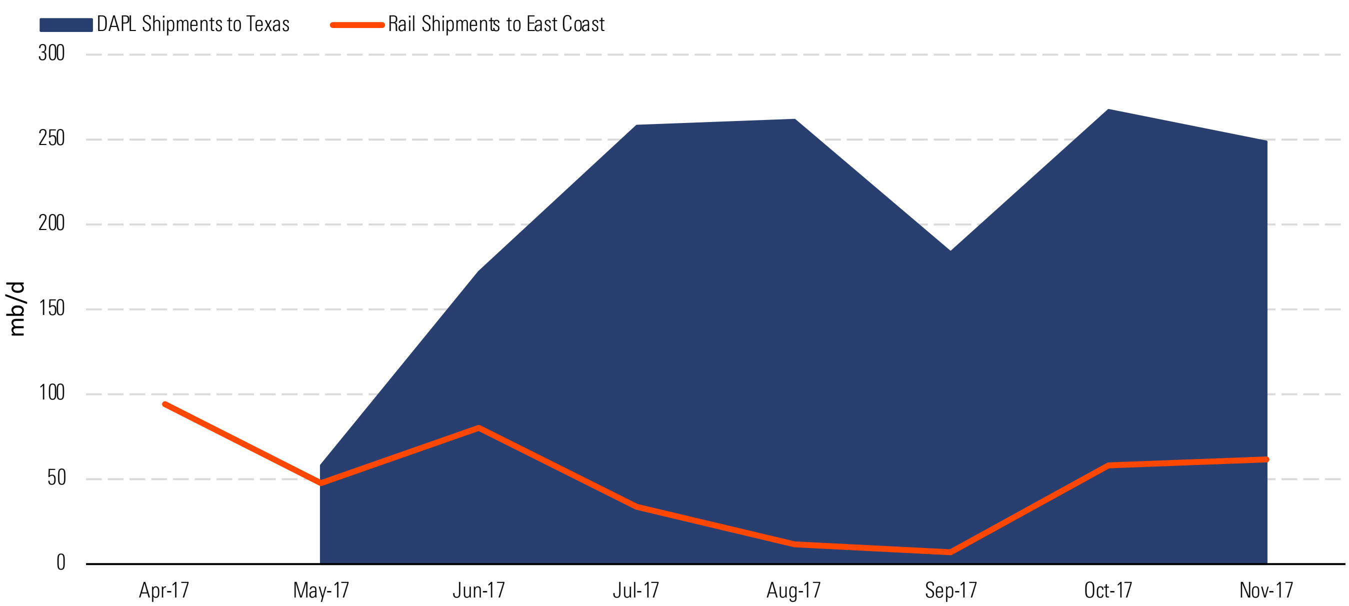
Life is looking better for Bakken crude producers these days. North Dakota production increased by 218 thousand barrels/day between January 2017 and February 2018, according to the Energy Information Administration's Drilling Productivity Report. Output this year is expected to surpass the previous peak of 1.24 million barrels/day set in June 2015 before the price crash. Prices for domestic benchmark West Texas Intermediate crude, which generally set levels for Bakken crude, are above $60/barrel this month, or 45% higher than their June 2017 low of $42.53/barrel. More significantly, the June 2017 opening of the Dakota Access Pipeline provided the first takeaway capacity to deliver North Dakota crude directly to Midwest and Gulf Coast refiners, in theory reducing higher transportation costs for Bakken barrels that made the play less attractive to investors. However, our analysis shows the advent of DAPL hasn't necessarily improved producer returns yet, but rather has locked them into pipeline commitments that reduce their flexibility to get the best returns. This note looks at DAPL shipments and netback returns for Bakken producers.

As we outlined in an April 2017 note (see "Why DAPL Hurts Crude Prices"), DAPL is a direct pipeline from North Dakota to the Gulf Coast that began operations in May 2017. The northern segment comprises new construction between producing counties in North Dakota and a crude terminal in Patoka, Illinois, and the southern section—also known as the Energy Transfer Crude Oil pipeline, or ETCO —is a converted gas pipeline running from Patoka to a Sunoco terminal at Nederland, Texas. The pipeline capacity is an initial 520 mb/d, expandable to 570 mb/d, and it primarily carries Bakken crude. Sunoco Logistics operate the pipeline and, together with parent Energy Transfer, holds a 38% ownership. Enbridge owns another 28% of the pipeline, Phillips 66 owns 25%, and Marathon Petroleum 9%.

Diverted Crude

Prior to DAPL, the North Dakota Pipeline Authority estimated that 24% of Bakken production leaving North Dakota was transported by rail, primarily to refineries in Washington State (see our January 2017 note "Pacific Northwest Refineries: Cheap Crude and a Captive Market") and East Coast refineries in New Jersey and Pennsylvania (see our July 2017 note "East Coast Refineries Recover From Shale Loss"). After DAPL, most of the crude being shipped by rail to the East Coast was diverted into the new pipeline to be shipped instead to refineries in the Midwest and on the Gulf Coast. EIA data through November 2017 shows that rail volumes between North Dakota (in PADD 2) and the East Coast (PADD 1) fell from 95 mb/d in April 2017 to average 34 mb/d between July and November 2017. At the same time, data reported to the Texas Railroad Commission shows that flows on DAPL into Texas ramped up between May and August 2017 to reach an average 261 mb/d in August as rail volumes fell (Exhibit 1).

Exhibit 1 Rail Shipments to East Coast and DAPL Flows Into Texas



Source: EIA, TRRC, Morningstar

Patoka Preference

Although the data confirms the drop in rail shipments to the East Coast after DAPL came on line, it also indicates that only about half the volume of crude expected to ship on DAPL (based on Energy Transfer's public announcement that shippers committed to over 470 mb/d) flowed into Texas during the first six months of operation. We assume the balance of these shipments left North Dakota on DAPL but were delivered to Patoka in the Midwest, rather than shipping all the way to the Gulf Coast. This is not entirely unexpected, given that (as detailed in our March 2017 Midwest refining outlook) Marathon has 729 mb/d of refining capacity in the eastern Midwest and is doubtless using its anchor shipper status and 9% ownership stake in DAPL to deliver Bakken crude to its plants via Patoka.

Netbacks Favor Old-Fashioned Rail

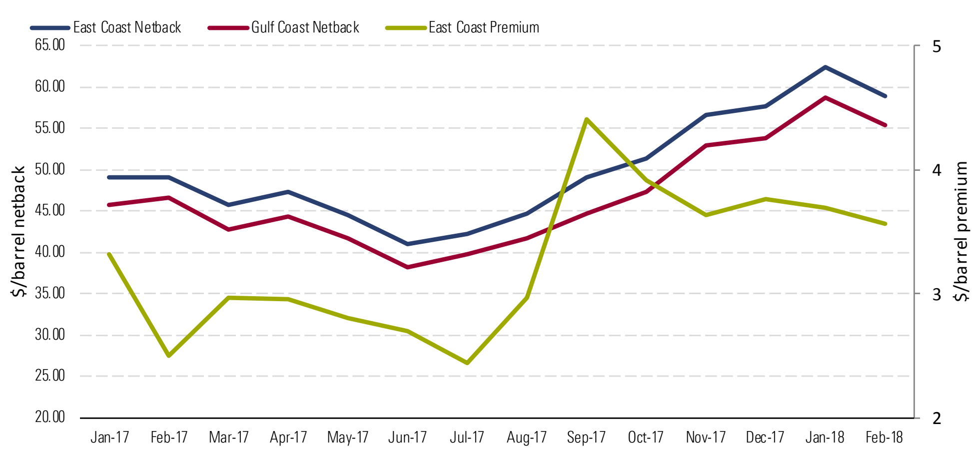
Our analysis of producer netbacks out of North Dakota suggests that using DAPL to ship Bakken crude to the Gulf Coast didn't make sense for much of the latter half of 2017, owing to a widening spread between international benchmark Brent and WTI at Cushing. During that period, producers were better off shipping crude on the "old-fashioned" rail route to the East Coast instead of to the Gulf Coast on DAPL. What stopped them swapping back was that their take-or-pay contract commitment to DAPL meant they faced penalties for not using the pipeline, which erased the economic incentive to use rail instead.

Producer netbacks are crude prices at the delivery market less the cost of transportation to that market from the wellhead. In this case, we estimated East Coast netbacks based on prices for competitive grades of imported Nigerian crude (sold at a premium to Brent) delivered to Philadelphia refineries, less rail transport cost from North Dakota. Although crude-by-rail is generally assumed to be more expensive than pipeline tariffs, intense competition from pipelines and reduced volumes shipped by rail since 2015 have made the latter more competitive these days. We estimate all-in transport costs via rail from North Dakota into a Philadelphia refinery are now around $8.50/barrel. Competitive crude prices were calculated as Brent plus a monthly posted differential for Nigerian Qua Iboe crude and a $1.30/barrel freight cost into Philadelphia.

For the equivalent Gulf Coast netback for Bakken producers, we used Houston WTI as the delivered Gulf Coast price and a $8.50 pipeline transport fee. The walk-up DAPL pipeline tariff from North Dakota to Nederland, Texas, on the Gulf Coast is $7.50/barrel, but shippers making a minimum 5 mb/d commitment over seven years get a discount price of $6.63/barrel. We estimated that additional terminal costs in North Dakota and transfer to a refinery or export terminal in Texas add about $1.40/barrel for a total $8.50/barrel. These are ball-park estimates but provide an indication of relative costs.

Based on these numbers, Exhibit 2 shows the netbacks calculated as monthly averages against the left axis, for East and Gulf Coast refiners between January 2017 and February 2018. The premium of East Coast netbacks over the Gulf is shown against the left axis (green line). The data shows East Coast netbacks averaged $45.49/barrel between January and August 2017, or an average $2.83/barrel premium, compared with $42.66/barrel for the Gulf over the same period. Between September and December 2017—after Hurricane Harvey disrupted Gulf Coast refining and Brent premiums over WTI Cushing widened out over $6/barrel—the East Coast netback premium over the Gulf widened close to $4/barrel and has averaged $3.63 in January and February 2018. In other words, the East Coast netback was consistently higher for North Dakota producers on paper after DAPL came on line, but became particularly attractive in the three months after Harvey.

Exhibit 2 North Dakota Producer Netbacks to East and Gulf Coasts



Source: CME Group, Morningstar

Lower netbacks at the Gulf Coast may also explain why only half the DAPL barrels travelled all the way to Texas last year. That conclusion is harder to confirm because crude pricing in the Midwest is opaque and the DAPL tariff from North Dakota to Patoka is still $5.35/barrel with minimum commitments, a relatively high transport cost that likely kept Midwest netbacks lower as well. Either way, pipeline commitments kept shippers tied to DAPL and discouraged a switch back to rail.

LOOP Connection

Although DAPL coming on line has provided relief for Bakken producers that suffered years of crude takeaway congestion, the new route to market has reduced producer flexibility in the short term by committing them to a relatively inflexible pipeline route, preventing them from taking advantage of a widening Brent premium to ship to East Coast refineries by rail. That's the disadvantage of making a fixed commitment to one mode of transport in a rapidly changing market. In the long term, the DAPL route to Nederland should provide greater flexibility once the Bayou Bridge pipeline is completed later this year. That pipeline, operated by Phillips 66, will allow Bakken barrels to flow to St. James, Louisiana, and the LOOP terminal that is now offering export service on VLCC vessels.

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