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## With a Permian Well, They Cried More, More, More – Part 3 – NGLs Need for New Gas Processing Plants and NGL Pipeline Takeaway Capacity Out of the Permian



- Permian NGL production is expected to grow from about 800 Mb/d today to between 1.25 MMb/d and 1.5 MMb/d in 2022.
- There are 25 new Permian natural gas processing plants planned to add about 5.0 Bcf/d of new processing capacity, with most of the plants located in the Delaware Basin.
- Ethane rejection in the Permian is expected to end, increasing the need for new pipeline capacity by about 120 Mb/d compared to average flows over the past four years.
- Although nameplate pipeline takeaway capacity is 1.7 MMb/d, about one-third of that capacity is used for barrels from basins either upstream or downstream of the Permian.
- New NGL pipeline capacity out of the Permian will be needed between 2020-2022, and perhaps a year or more earlier due to the geography of Permian production.
- Several pipeline expansions and greenfield pipeline projects are in the works that could add up to 1.0 MMb/d of new capacity if all were built.

### 1. Introduction

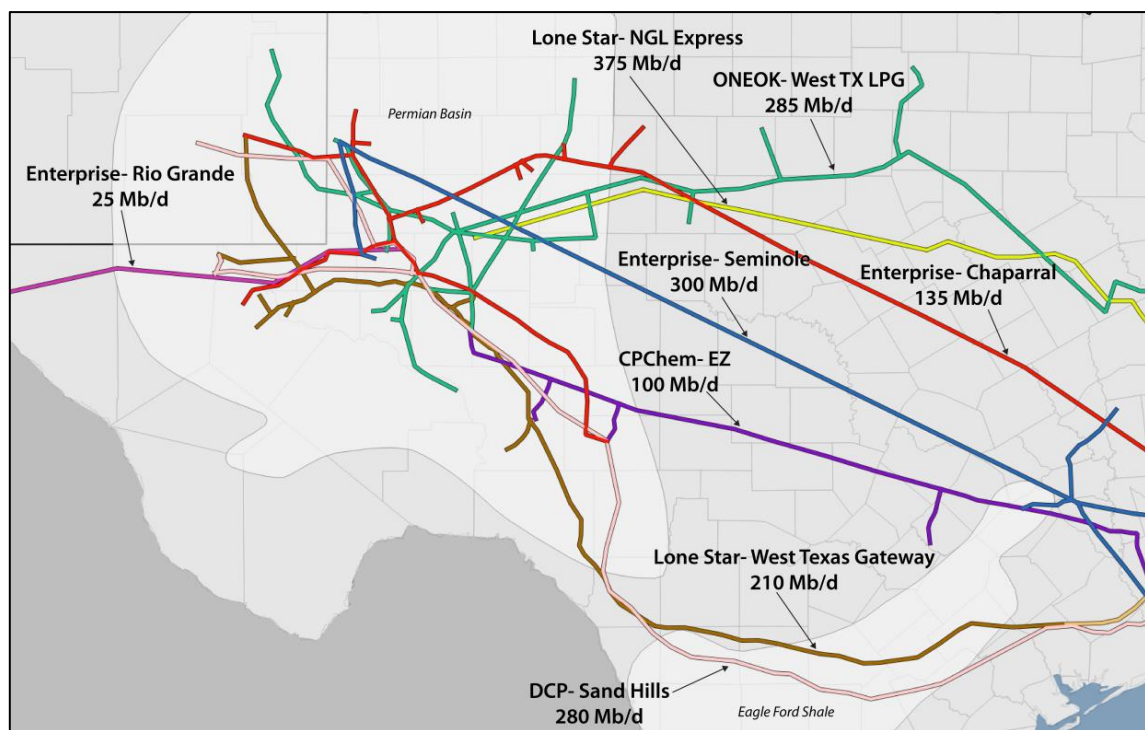
Permian natural gas liquids (NGL) production is on a tear, doubling over the past four years to 800 Mb/d, with the possibility of almost doubling again by 2022. With that much supply growth, pipeline takeaway capacity is an obvious concern. But this is the Permian, where big-league NGL volumes are nothing new. A lot of legacy infrastructure has been in place for decades, and a couple of new pipeline projects came on line just last year. So there appears to be ample takeaway capacity to serve the region. But appearances can be deceiving.

For one thing, a number of the NGL pipes out of the Permian also move barrels from other basins, either inbound flows from the Rockies or volumes added downstream of the Permian in the Eagle Ford and Barnett shales. A second factor is ethane rejection. For the past four years, Permian gas processing plants have rejected about 120 Mb/d of ethane, with the molecules sold as natural gas, rather than extracting the ethane, transporting it to a fractionator (usually in Mont Belvieu, TX), fractionating the barrels and then transporting the ethane to a petrochemical plant or export terminal. Within the next 12 to 18 months, Permian ethane rejection will likely be behind us, with all the ethane that the Permian can produce needed to supply several new ethane-only steam crackers coming online that could increase ethane demand by 360 Mb/d. In addition to that, ethane exports are also on the rise, putting even more upward pressure on ethane prices.

Third, there is the geography of Permian NGL production growth. Over the next two years, 25 new Permian natural gas processing plants are expected to add about 5.0 Bcf/d of new processing capacity, with more plant projects likely to be announced in the coming months. All but five of those plants are in the Permian’s Delaware Basin, where production is growing at a much faster rate than the rest of the Permian. The problem is that the Delaware did not start with a lot of gas processing and pipeline takeaway because most legacy Permian NGL production was in the Midland and Central basins.

And finally, Permian NGL production growth is being driven by increases in crude production, which comes along with associated natural gas that contains significant quantities of NGLs. Based on RBN’s alternative price scenarios for crude oil and natural gas prices, Permian NGL production is expected to increase from about 800 Mb/d today to 1.25 MMB/d in 2022 in the Contraction Scenario (an increase of 450 Mb/d), all the way to 1.5 MMB/d in the 2022 Advance Scenario (an increase of 700 Mb/d). Consequently, NGL production is projected to grow under *any* RBN price scenario, with higher crude and gas prices responsible for significantly higher production levels.

Today, there is a total of about 1.7 MMB/d of nameplate NGL takeaway capacity out of the Permian on eight pipelines, shown in Figure 1. But as noted above, not all of the NGL pipeline capacity out of the Permian is available for use by Permian NGL producers.



**Figure 1 - NGL Pipelines Out of the Permian; Source: RBN**

When these capacity numbers are adjusted for volumes entering the Permian from other regions (Rockies barrels on Enterprise Products Partners’ Mid-American Pipeline, or MAPL) and barrels that will be added to pipelines downstream of the Permian (Eagle Ford and/or Barnett barrels on ONEOK’s West Texas LPG Pipeline, Energy Transfer Partners’ Lone Star NGL system, DCP Midstream’s Sand Hills Pipeline and the Chevron Phillips Chemical EZ Pipeline) the effective capacity out of the Permian falls to only 1.1 MMB/d, or about two-thirds of nameplate capacity. Even though that number is still well above the 800 Mb/d of NGLs produced today in the Permian,

the combined impact of increasing production from all of the new gas processing plants — plus the end of ethane rejection — suggests that the Permian could see takeaway capacity constraints by mid-2020 in RBN’s Advance Scenario, and mid-2022 in the Contraction Scenario. However, it is important to note that these numbers assume all Permian NGLs can get to all open pipeline capacity. Given that much of the available capacity is out of the Midland Basin but much of the growth in NGL production is in the Delaware Basin, it is quite likely that new pipeline capacity out of the Delaware will be needed at least a year prior to the aggregate balance projections.

Fortunately for Permian NGL producers, several pipeline expansion projects are in the works. Two expansions to the Sand Hills Pipeline (owned by DCP Midstream and Phillips 66 Partners) would increase the effective capacity out of the Permian to nearly 1.3 MMb/d by the fall of 2018. Then three or more projects are competing to handle the next tranche of production: Enterprise’s 250-Mb/d Shin Oak Pipeline (2019), Targa Resources’ 300-Mb/d Grand Prix Pipeline (2019) and Permico Energía’s 300-Mb/d Compañero Pipeline (2020). Other possible NGL pipelines out of the Permian are under consideration as well. For example, Buckeye Partners is looking at a possible Permian-to-Corpus NGL pipeline that would complement its planned South Texas Gateway crude oil pipeline, and Energy Transfer Partners has indicated that its Lone Star Express NGL pipeline could be expanded by several hundred thousand barrels per day.

Most likely, only one or two of these new pipes will be needed, and the demand will not be there for all the projects being planned — at least not within a five-year time horizon. The success or failure of each of the proposed pipeline projects will depend on its developer’s ability to bring barrels under its control to the project and/or to secure long-term commitments of producer volumes to the project. Given that most of the incremental NGL production will come from new Permian gas processing plants, successful projects would need to either connect directly to a number of these plants or gain access to them via other pipelines. Another determinant of NGL pipeline project success may be assessments by producers and others on whether they would prefer that their NGLs flow to Mont Belvieu — the dominant NGL storage, fractionation and export hub — or to Corpus Christi, an alternative that also could provide access to storage, fractionation, and export markets.

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