

April 03, 2019

Bakken-Rockies: Infrastructure Developments 1Q19

Stratas Advisors

Introduction

KEY TAKEAWAYS

- Activity in the Bakken-Rockies this quarter resulted in a total of nine project updates.
- With crude production projected to grow in the Bakken-Rockies as well as nearby plays, additional pipeline capacity will be required to move the incremental volumes to key markets. **Tallgrass Energy, LP (NYSE: TGE)** and **Kinder Morgan, Inc. (NYSE: KMI)** look to extend and expand the Pony Express pipeline system's capacity by the second half of 2020. The expansion will increase the pipeline's capacity by more than 35%.
- We had one update regarding natural gas pipeline infrastructure. **WBI Energy** announced plans to expand its North Bakken pipeline by the first quarter of 2021. The expansion project is estimated to cost around \$220 million.
- Seven of the nine projects came from the natural gas processing infrastructure table. **Williams Cos. Inc. (NYSE: WMB)** announced plans to add 900 MMcf/d of processing capacity in the region in next 3 to 4 years. Lack of processing capacity in the region has resulted in increased flaring. The addition of incremental processing capacity should see a reduction in flaring.

Crude Oil Infrastructure Updates

CRUDE OIL PIPELINE INFRASTRUCTURE

Company	Project	Details	Capacity (Mbb/d)	Completed
Tallgrass Energy, LP (NYSE: TGE)/Kinder Morgan, Inc. (NYSE: KMI)	Pony Express Pipeline System, Wyoming Intrastate Company and Cheyenne Plains Gas Partial Pipeline Conversions	The combined pipeline system is expected to be capable of delivering up to 800 Mbb/d of light crude oil and 150 Mbb/d of heavy crude oil from points in Wyoming and Colorado to TGE's and KMI's Deeprock terminal in Cushing.	250	2H20

Source: Stratas Advisors, company disclosures

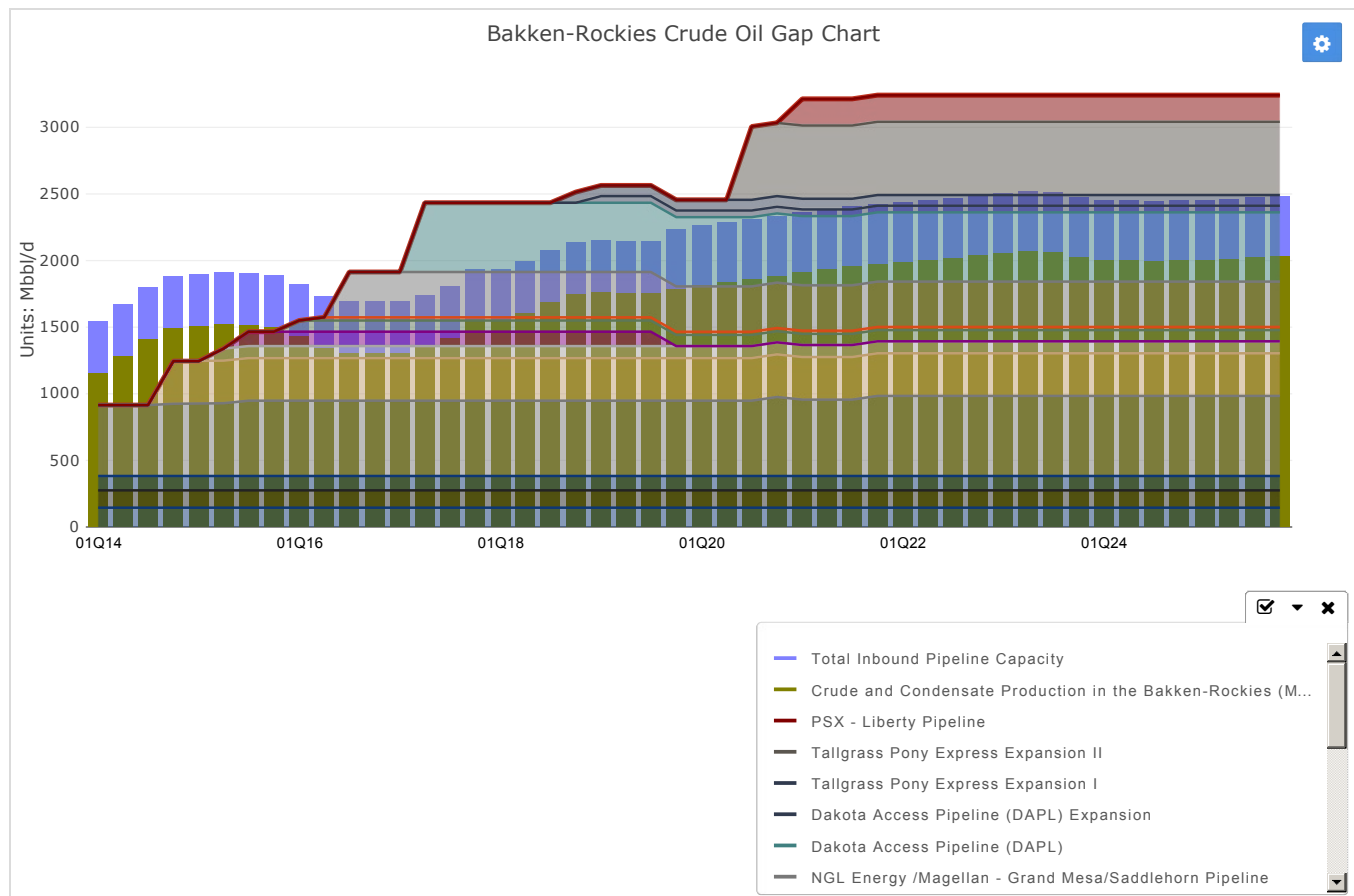
Our 1Q19 analysis of the Bakken and Rockies plays yielded one project updates for crude oil pipeline infrastructure.

For members of the following service(s): North America, NAS - Infrastructure, Energy Perspectives

Tallgrass Energy, LP (NYSE: TGE) and Kinder Morgan, Inc. (NYSE: KMI) announced an agreement to jointly develop a solution to increase existing crude oil takeaway capacity in the growing Powder River and Denver-Julesburg basins and to add incremental capacity to the Williston Basin and portions of Western Canada.

The proposed venture would include both existing and newly constructed assets. TGE would contribute its Pony Express Pipeline System, and KMI would contribute portions of its Wyoming Intrastate Company and Cheyenne Plains Gas Pipeline and begin the process of abandonment and conversion to crude oil service. In addition, approximately 200 miles of new pipeline would be constructed to provide crude oil deliveries into Cushing, Okla.

The project is expected to add 250 Mbb/d of incremental capacity. In total, the combined pipeline system is expected to be capable of delivering up to 800 Mbb/d of light crude oil and 150 Mbb/d of heavy crude oil from points in Wyoming and Colorado to TGE's and KMI's Deeprock terminal in Cushing. The combined project is expected to provide initial service as early as the second half of 2020.



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Source: Stratas Advisors, company disclosures.

Within our shale gap charts, we show that the Bakken region will have ample takeaway capacity for the projected

incremental crude oil production growth. Despite showing a decrease of 10 Mbb/d from 1,764 Mbb/d in 1Q19 to 1,754 Mbb/d in 2Q19, we project Bakken-Rockies crude oil production to show quarter to quarter growth afterward until it peaks at 2,069 Mbb/d in 2Q23. Bakken-Rockies crude oil production will then decline for the next five quarters and bottom at 1,999 Mbb/d in 3Q24. Crude oil production will then continue to increase until the end of the forecast.

The region could add two pipeline projects during our forecast period. The first being Tallgrass's Pony Express Expansion II, which will now add a combined 550 Mbb/d in the second half of 2020. The second will be from Phillips 66's Liberty pipeline. The pipeline is expected to add 350 Mbb/d of takeaway capacity by 4Q20 to the Bakken-Rockies region.

The commissioning of both Tallgrass's Pony Express Expansion II and Phillips 66's Liberty pipeline could cause a significant pipeline overbuild of nearly 1 MMbb/d. Even after considering the 390 Mbb/d of inbound crude from Enbridge's Express pipeline and Phillips 66's Glacier pipeline, we still believe the region will have a pipeline overbuild. For this reason, we don't believe that both pipeline projects will come online. We think one or the other would make sense and operate sustainably given our crude forecasts for the Bakken and Rockies.

Our complete 1Q19 infrastructure listings are available in this [Excel download](#).

Natural Gas Infrastructure Updates

NATURAL GAS PIPELINE INFRASTRUCTURE UPDATES

Company	Project	Details	Capacity (MMcf/d)	Completed	Construction Cost (\$ Million)
WBI Energy, an MDU Resources Group company (NYSE:MDU)	North Bakken Expansion Project	The company plans to construct 67 miles of pipeline, compression, and ancillary facilities to transport 220 MMcf/d of natural gas starting near Tioga, ND, and extending to a new connection with Northern Border Pipeline in McKenzie County, ND	200	1Q21	\$220(*)

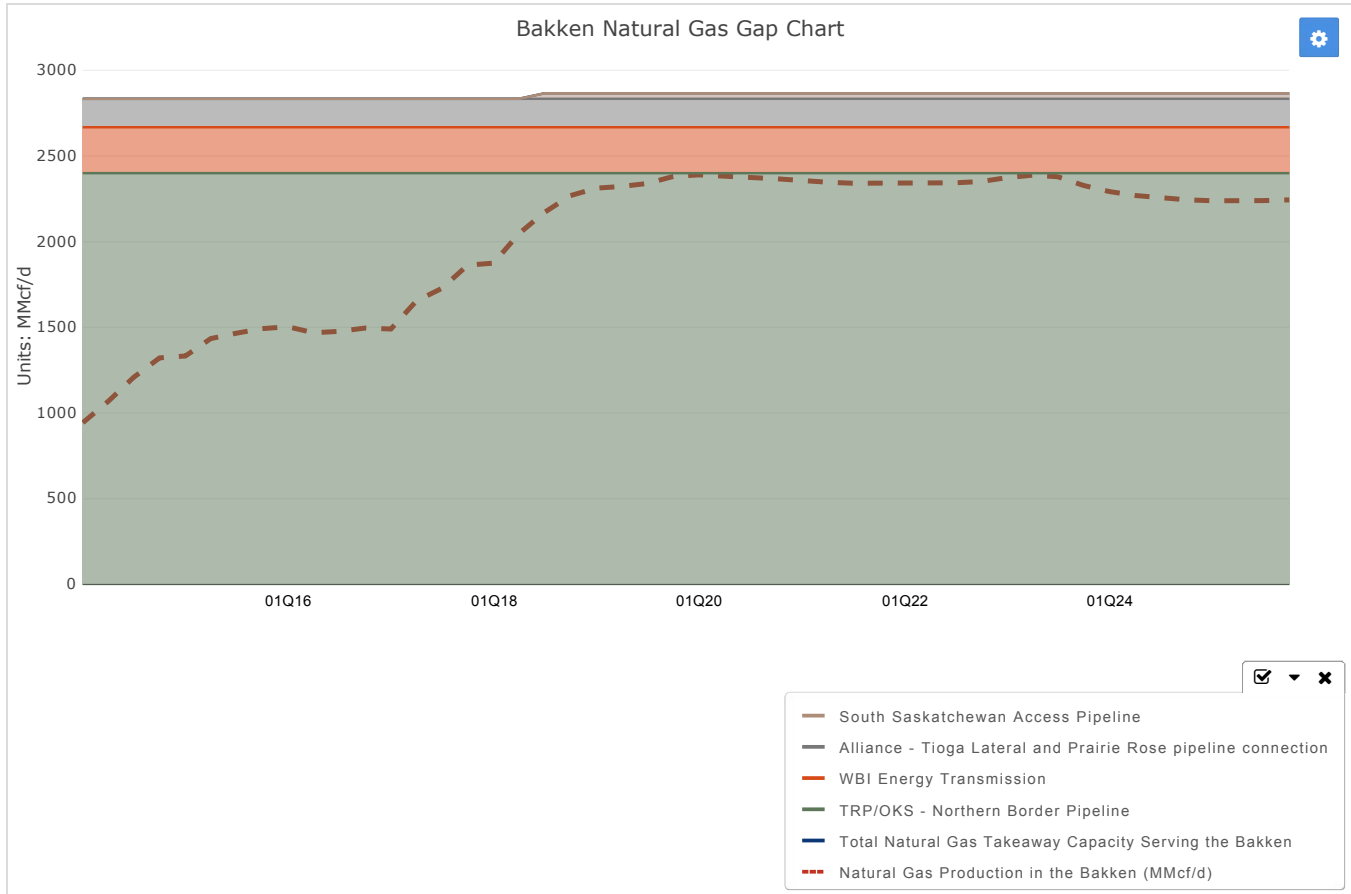
(*) Construction estimates by Stratas Advisors, (d) Company disclosed construction cost.

Source: Stratas Advisors, company disclosures.

Our 1Q19 analysis of natural gas processing infrastructure includes only one project updates this quarter.

MDU Resources Group, Inc. (NYSE: MDU) announced that subsidiary WBI Energy, Inc. plans to construct approximately 67 miles of new pipeline, compression and ancillary facilities to transport natural gas from core Bakken production areas in western North Dakota to an interconnection point with Northern Border Pipeline. This North Bakken Expansion Project, as designed, would provide 200 MMcf/d of natural gas transportation capacity. The estimated cost to build the designed 20-inch diameter pipeline and two associated compressor facilities is \$220 million. The project is expected to start near Tioga, North Dakota, and extend to a new connection with Northern Border Pipeline in McKenzie County, North Dakota.

The final project design, route and cost will be based on customer demand and final agreements, as well as the engagement of other project stakeholders through the pre-filing process. If warranted by customer demand, the project could be expanded to provide transportation capacity of up to 375 MMcf/d. Dependent on regulatory and environmental permitting and finalization of transportation agreements with customers, construction on the project is expected to begin in early 2021 and be completed late that year.



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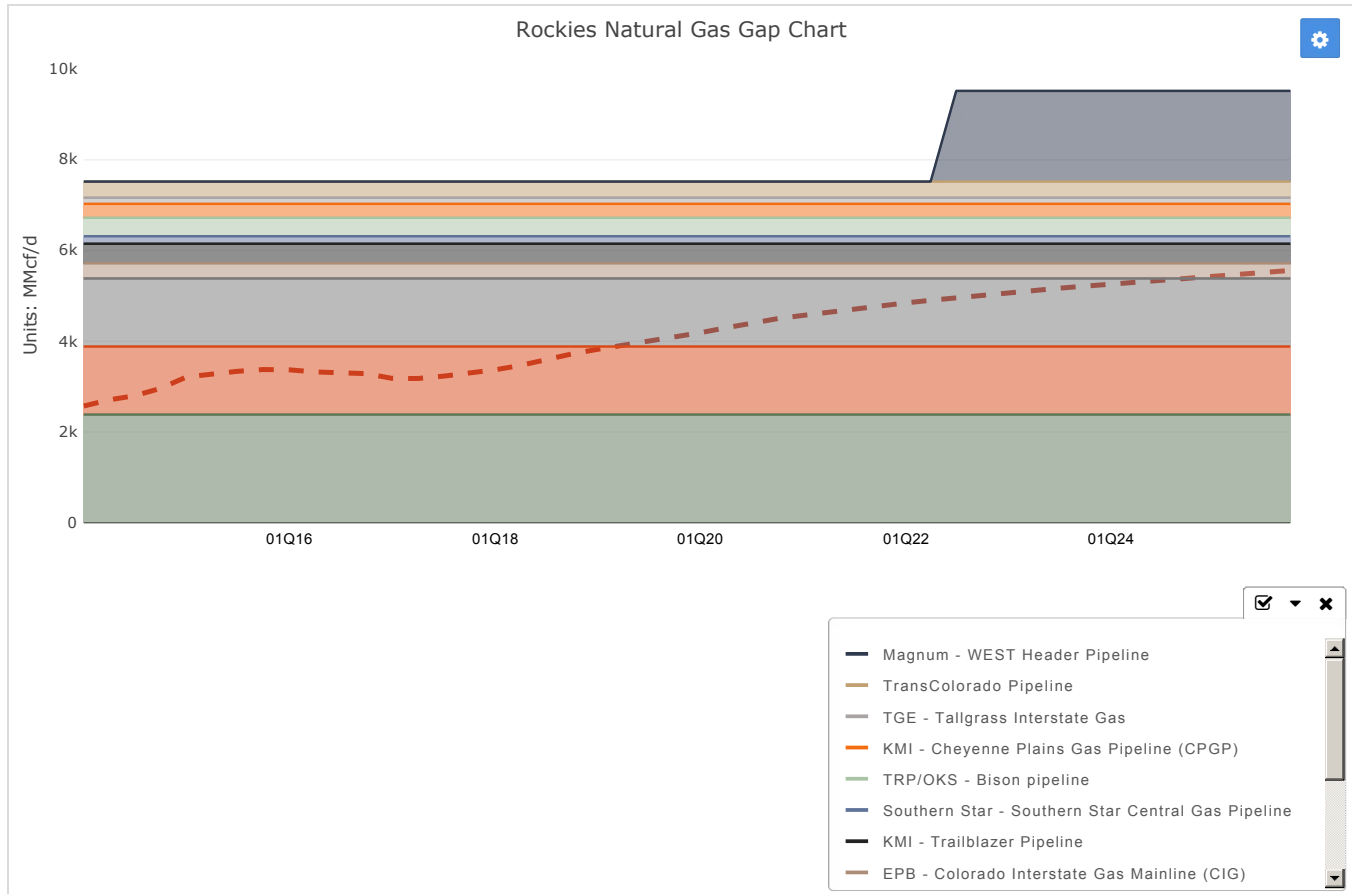
Source: Stratas Advisors, company disclosures.

Despite our gap chart showing sufficient takeaway capacity, all long haul pipelines (except for the South Saskatchewan pipeline) transport natural gas from other producing regions before picking up natural gas produced in the Bakken region.

We believe with most regions currently experiencing production growth, the available capacity on the long haul pipeline serving the Bakken is limited. As a result, flaring in the Bakken has been on an increase. According to media reports approximately 530 MMcf/d of natural gas produced in 2018 was flared in North Dakota due to lack of processing and pipeline takeaway capacity.

We expect new pipeline and processing addition projects to be announced in the region in order for production growth to be sustained. If new infrastructure projects that support production growth are not announced fast enough, we could expect an

increase in flaring or a decrease in production growth



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Source: Stratas Advisors, company disclosures.

Using our upstream natural gas production forecast, our gap charts shows that the Rockies region will have sufficient pipeline takeaway capacity to transport the forecasted production growth. As of 1Q19, we project Rockies takeaway capacity to stay at 8.2 Bcf/d with production increasing to 3.8 Bcf/d. With takeaway capacity far exceeding Rockies production, we believe that takeaway pipeline in the region will operate below nameplate capacity as a result of a pipeline overbuild.

According to a presentation from Wyoming pipeline authority, the total takeaway capacity in the region operated at 59% capacity in 2018. If low pipeline utilization continues, we could see some of these pipelines either decommissioned or repurposed to carry crude or NGL's from the region.

NATURAL GAS PROCESSING INFRASTRUCTURE UPDATES

Company	Details	Capacity (MMcf/d)	Time Line	Capex (\$ Million)
Crestwood Midstream Partners (NYSE:CMLP) and Williams Partners LP (NYSE:WPZ)	Bucking Horse Processing Plant Expansion - The plant will be increased from 120 MMcf/d to 145 MMcf/d by the end of 4Q18	25	Completed 4Q18	\$23 ^(*)

Summit Midstream Partners LP (NYSE:SMLP)	DJ Processing Plant I: The company plans to build a new 60 MMcf/d cryogenic gas processing plant in the DJ Basin	60	2Q19	\$60 ^(*)
	DJ Processing Plant II: The company plans to build a second 60 MMcf/d cryogenic gas processing plant in the DJ Basin	60	3Q20	\$60 ^(*)
Williams Cos. Inc. (NYSE:WMB)	Keenesburg I - The company plans to construct a new processing plant in the DJ Basin region	225	2019	\$298 ^(*)
	Keenesburg II - The company plans to add a second plant at its Keenesburg facility	225	2020	\$298 ^(*)
	Milton I - The company plans to construct a new processing plant in the DJ Basin region	225	2021	\$298 ^(*)
	Milton II - The company plans to add a second plant at its Milton facility	225	2022+	\$298 ^(*)

(*) Construction estimates by Stratas Advisors, (d) Company disclosed construction cost.

Source: Stratas Advisors, company information

The increase of natural gas production in the Bakken-Rockies which has led to flaring sees activity in natural gas processing plant project announcements in the region. We had a total of seven project announcements and one completion.

Crestwood Equity Partners LP (NYSE: CEQP) announced the completion of the expansion project at its Bucking Horse facility. The expansion project increases the facilities processing capacity from 120 MMcf/d to 145 MMcf/d. The Bucking Horse facility is a joint ownership between Crestwood Midstream Partners (NYSE:CMLP) and Williams Partners LP (NYSE:WPZ).

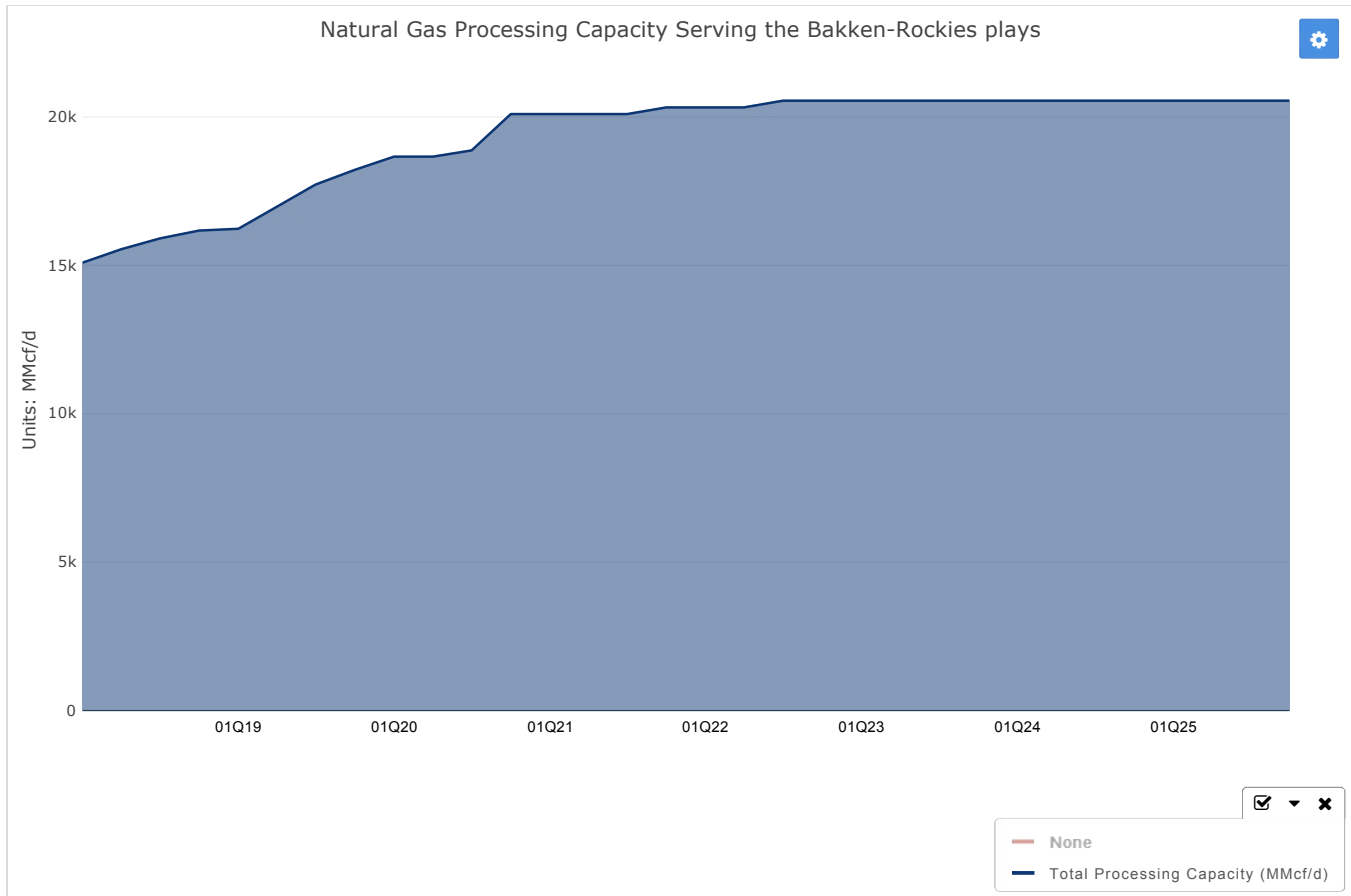
Summit Midstream Partners LP (NYSE:SMLP) in its earnings call announced a new in-service date for its DJ Processing Plant I. The in-service date for the 60 MMcf/d plant was moved from 1Q19 to 2Q19 due to delays in the permitting process. In addition, the company disclosed that it plans to add a second plant at the facility by 3Q20 due to projected production growth in the region. The second plant will also have a 60 MMcf/d capacity. We estimated the construction cost for each plant to be around \$60 million.

Williams Cos. Inc. (NYSE:WMB) in its recent Investor Presentation disclosed plans to add four processing plants at two facilities. The first two plants will be constructed at the Keenesburg facility. The Keenesburg I and II are scheduled to come online in 2019 and 2020 respectively.

The next two plants to be constructed by Williams will be at the Milton facility. The Milton I and II are expected to come online in 2021 and 2022+.

All four plants will have a processing capacity of 225 MMcf/d (900 MMcf/d combined) and are estimated to cost just under \$300 million to construct.

PROJECTED NATURAL GAS PROCESSING CAPACITY



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Source: Stratas Advisors, company disclosures.

The processing capacity serving the Bakken-Rockies region is just under 11 Bcf/d as of 1Q19. New processing capacity additions as a result of production growth could increase by 35% or to 14.5 Bcf/d by 3Q22. The increase of processing capacity should reduce flaring in the Bakken-Rockies region.

Our complete 1Q19 infrastructure listings are available in this [Excel download](#).