PIPELINE INDUSTRY UPDATE

With 2018 over, the Pipeline Authority would like to reflect on some key midstream developments that took place over the past year and what major projects can be expected in 2019 and beyond.

Crude Oil

Crude oil production in North Dakota reached record levels in October 2018 at 1.39 million barrels per day. Pipeline transportation accounted for 70-75% of oil movements out of North Dakota in 2018, with crude by rail averaging roughly 18% of the long-haul market. The remaining balance of crude oil was either refined at one of two refineries in the state or trucked north to enter the Canadian transportation network.

A major crude oil project was publicly announced in November 2018. A joint open season was launched by Phillips 66 and Bridger Pipeline for the proposed Liberty and Red Oak Pipelines, which together would provide service from the US Williston Basin and Rockies to Corpus Christi, TX. Results of the open season were not available at time of publication, but if sufficient shipper interest exists, the 350,000 barrel per day Liberty Pipeline system could be in service by late 2020. The open season process will ultimately determine the quantity of capacity that will be available for production exiting the Williston Basin.

A second major crude oil project was proposed in January 2019 by Tallgrass Energy and Kinder Morgan. The proposed project would expand Rockies and Williston Basin crude oil transmission pipeline capacity to Cushing, OK. Proposed capacity details and timelines were not public at time of publishing.

Natural Gas

Associated natural gas production in North Dakota reached record levels in October 2018 at 2.56 billion cubic feet per day. Over \$3.1 billion in natural gas capture related infrastructure was announced or under construction by the end of 2018 in order to meet rising statewide production levels. A combined total of 1.2 billion cubic feet per day of new natural gas processing capacity will be added by 2020 for a statewide processing capacity of 3.36 billion cubic feet per day. Further investment in gathering and processing will be required post-2020 in order for the industry to keep pace with expected production rates and gas capture goals.

In 2018, ONEOK announced a new natural gas liquids transmission system known as the Elk Creek Pipeline. The \$1.4 billion project will initially connect 240,000 barrels per day of natural gas liquids from the Williston Basin to additional infrastructure in Kansas. This project could be expanded up to 400,000 barrels per day. Construction of the pipeline began in 2018 and is expected to be complete by the end of 2019.

Carbon Dioxide

Two carbon dioxide pipeline projects are currently under development. One system would be operated by Denbury Resources and would connect the Cedar Creek Anticline oilfields in eastern Montana and southwest North Dakota to the existing Greencore Pipeline at Bell Creek, MT. The 110 mile, \$150 million, extension is anticipated to be complete by 2020. The second project under development is part of Project Tundra's plan to collect carbon dioxide from the Milton R. Young Station and transport it to the Williston Basin for either sequestration and/or enhanced oil recovery. If approved, a pipeline carrying carbon dioxide from the Young Station could be in service by the early 2020's.

INDUSTRIAL COMMISSION OF NORTH DAKOTA PIPELINE AUTHORITY www.pipeline.nd.gov

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NORTH DAKOTA — Production Numbers

Average Daily Oil Production, BOPD		
Sep. 18	Oct. 18	Nov. 18
1,359,283	1,392,369	1,375,803

Average Daily Gas Production, MMCFD			
Sep. 18	Oct. 18	Nov. 18	
2.53	2.56	2.52	

Average Rig Count			
Sep. 18	Oct. 18	Nov. 18	
65	67	64	

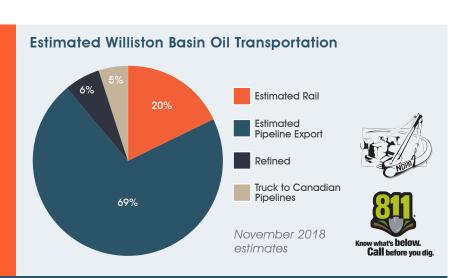
As of January 22, 2019, there are 65 active rigs in North Dakota

North Dakota Pipeline Authority

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ACTOID

During the months of September to November 2018, close to 1,000,000 barrels per day of refining capacity was offline for maintenance in the Midwest. The reduction in refining capacity had an immediate negative impact on all crude oil marketed from Canada and the Williston Basin as regional pipeline congestion took place. By the end of 2018, Midwest refining utilization has returned to normal and pricing for Williston Basin crude oil has improved.



North Dakota Pipeline Authority