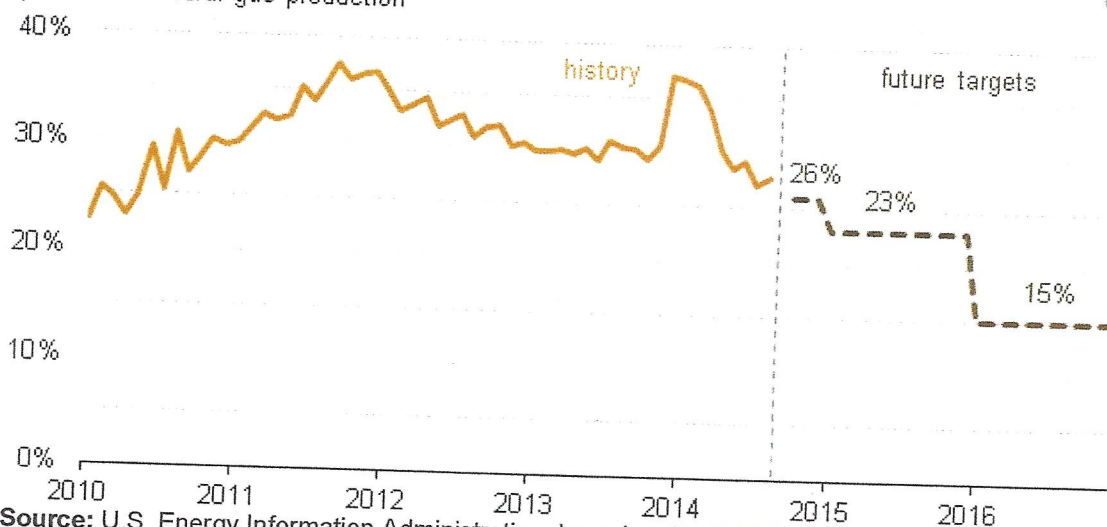## Today in Energy
October 20, 2014

North Dakota aims to reduce natural gas flaring

Natural gas flared in North Dakota (2010-16)
percent of natural gas production

Source: U.S. Energy Information Administration, based on North Dakota Industrial Commission

About one-third of the natural gas North Dakota has produced in recent years has been flared rather than sold to customers or consumed on-site. The rapid growth in North Dakota oil production, which rose from more than 230,000 barrels per day (bbl/d) in January 2010 to more than 1,130,000 bbl/d in August 2014, has led to increased volumes of associated gas, or natural gas that comes from oil reservoirs. These increased volumes require additional infrastructure to gather, process, and transport gas volumes instead of flaring them. These additions can take time to build, and well operators are often reluctant to delay production. In an effort to reduce the amount of natural gas flared, North Dakota's Industrial Commission (NDIC) established targets that decrease the amount of flared gas over the next several years.

The first target of 26% flared is set for fourth-quarter 2014, with continued decreases in flaring reaching 10% by 2020. North Dakota recently reported that it was close to achieving the 26% reduction target for natural gas flaring, as the percentage in August was 28% flared, or 375 million cubic feet per day (MMcf/d) out of a total production of 1,340 MMcf/d. The rest of the produced natural gas was either sold or used at the production site.

Natural gas is flared, or burned directly to the atmosphere, rather than being vented without combustion because methane, the primary constituent of natural gas, has much higher global warming potential than carbon dioxide, the main component of combusted gas. By law, North Dakota prohibits natural gas venting.

The NDIC seeks to reduce the volume of flared gas, even if it means cutting back production at its largest oil production areas (the Bakken and Three Forks formations). The NDIC's order issued on July 1 said it will "consider amending...field rules to restrict oil production and/or impose such provisions as deemed appropriate to reduce the amount of flared gas." Recognizing the difficult economics of dealing with rapidly declining production from newly drilled wells, the NDIC's order allows for exemptions on a case-by-case basis.

The North Dakota Pipeline Authority estimates that more than one-third of the flared gas results from a lack of gathering pipelines. Infrastructure buildouts can cause delays in realizing the value of crude oil and other liquids that motivate drilling in North Dakota, and are uneconomic when natural gas volumes there are too low. The largest challenge, according to the NDIC, is securing landowner permission for connection activities, which can delay projects half a year or longer. Other obstacles include zoning and permitting delays, harsh weather, and labor shortages. The remaining flared gas results from challenges to existing infrastructure, including the need for additional

gathering-line pressure to offset higher pressure from newly drilled wells, additional gathering-pipeline capacity at high-pressure wells, and additional clearing of existing lines to remove natural gas liquid volumes.

Increased capacity to process and transport natural gas also contributes to higher volumes of natural gas that are sold rather than flared. By the end of the year, expected completions of natural gas processing plant projects would increase North Dakota's natural gas processing capacity to 1,454 MMcf/d, or 440 MMcf/d more than last year. ONEOK, Inc. plans to add another 400 MMcf/d of natural gas processing capacity by the end of 2016. Capacity to move this additional gas on pipelines would also increase as a result of the Northern Border Pipeline Company's 55-mile Bakken Header pipeline (400 MMcf/d as early as 2016) and WBI Energy's 375-mile Dakota Pipeline (between 400 and 500 MMcf/d by the end of 2017).

Disposition of North Dakota natural gas production (Jan 2010 - August 2014)
million cubic feet per day
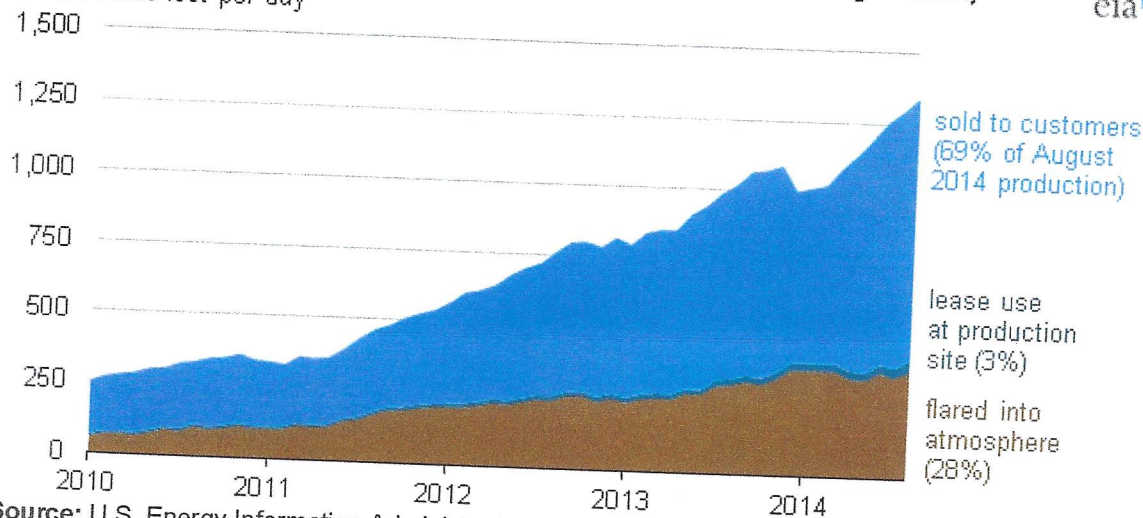
Source: U.S. Energy Information Administration, based on North Dakota Industrial Commission
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