

## Serving the Bakken



The oil play in the Bakken formation covers parts of western North Dakota and eastern Montana. Crude oil production in North Dakota grew from a daily average of 115,000 barrels in early 2007 to more than a million barrels a day. This represented about 12 percent of the nation's crude oil production. Currently, North Dakota is the third-largest oil-producing state, trailing only Texas and New Mexico.

Although drilling and production activity decreased in 2015 due to a drop in the price of crude oil, recent price stability has caused electrical loads to continue to grow. Forecasts predict extensive generation capacity purchases or resource expansion will be needed to serve Basin Electric's long-term power supply obligations in the future. In response to continuing growth, Basin Electric has constructed generation and transmission projects to meet the region's increasing needs.

Basin Electric continues to actively monitor the growth and planning for transmission and generation needs associated with rapidly increasing loads.

### Transmission

Basin Electric, its member cooperatives, Western Area Power Administration, and the Southwest Power Pool (SPP) have developed a phased approach with transmission infrastructure.

Western Area Power Administration and Basin Electric are the two largest transmission owners in the Upper Missouri Zone, a multi-owner, joint-pricing zone within the SPP transmission system. Together, they have spent hundreds of millions of dollars in new construction and upgrades to provide the transmission system necessary to deliver electricity reliably in the region.

#### Projects supporting the Bakken:

- Basin Electric's 74-mile Rhame-to-Belfield 230-kilovolt (kV) transmission line and the associated Rhame Substation placed in service in 2010.
- Basin Electric's 61-mile Williston to Tioga 230-kV line and the associated Neset Substation placed in service in 2011.





Lonesome Creek Station, Watford City, North Dakota

- Western Area Power Administration's upgrade of its 75-mile-long Williston to Charlie Creek 115-kV line, placed in service in 2012.
- Basin Electric's 200-mile-long Antelope Valley to Judson 345-kV transmission line, placed in service in 2015.
- Basin Electric's 30-mile-long Patent Gate to Kummer Ridge 345-kV line, placed in service in 2016.
- Basin Electric's 61-mile-long Judson to Tande 345-kV line, placed in service in 2017.
- Multiple new substations and upgrades to existing substations were built to support the Bakken including: Kenaston, Blaisdell, Neset, Tande, and Wheelock.
- SPP through its Transmission Planning processes has directed Basin Electric to construct new projects to support the growing load in the Bakken. The 27-mile Neset to North Shore 230 kV project is expected to be completed in October 2022. In addition, 200 miles of new 345 kV transmission, along with two new substations are expected to be completed by the end of 2025.

## • Peaking Generation in North Dakota

- Pioneer Generation Station, Williston, North Dakota
  - » Three 45-MW natural gas-fired simple cycle units
  - » Twelve 9.3-MW natural gas-based reciprocating engines (112 MW)
- Lonesome Creek Station, Watford City, North Dakota
  - » Six 45-MW natural gas-fired simple cycle units.

Both Lonesome Creek and Pioneer generation stations serve as peaking power plants and support the stability of the transmission grid.

## Regional Generation

To meet the need for additional generation, Basin Electric has constructed additional power plants outside North Dakota to assist in serving member load throughout the Basin Electric service territory.

They include:

- Culbertson Generation Station, Culbertson, Montana
  - » 95-MW natural gas-fired peaking plant (2011)
- Dry Fork Station, Gillette, Wyoming
  - » 405-MW coal-based plant (2011)