

Meeting the Bakken need

By Tracie Bettenhausen

When Jay Lundstrom, Basin Electric senior forecast analyst, started his load forecast presentation to the Basin Electric board of directors in April, he knew the information was already outdated.

Just the day before, ONEOK, an energy services company, had announced a pipeline to carry oil directly from the Bakken to the Cushing, OK, port for export. At 500 miles long, ONEOK's pipeline is not expected to face the scrutiny the Keystone XL has, according to Lundstrom. ONEOK's pipeline will not cross the United States-Canada border, nor will it cross Nebraska, a state in opposition to the Keystone XL pipeline.

"We heard about it on Monday, and now we're delivering estimates. Since it will carry 200,000 barrels a day, the pipeline could require 50 to 100 megawatts (MW) throughout our service area, and that's a very rough estimate," Lundstrom says.

These days when people talk about western North Dakota and the Bakken oil play in the Williston Basin, there is a sense of wonder at the level of development; and a sense of dread, at the inevitable and present issues with housing, traffic, crime, water use – simply every societal element of these rapidly burgeoning communities.

The communities and infrastructure in the area feel the weight of the oil, and the pressure won't get any lighter for many years, unless there is a serious drop in the price of a barrel of oil. It's been said in many places and in many ways: western North Dakota will never be the same again.

Basin Electric serves this area. And while a majority of the cooperative's Class A members are seeing a slight increase or decline in this year's load forecast, two are seeing intense growth. District 3, Central Power Electric Cooperative, headquartered in Minot, ND, is projected to see an increase of 266 MW of load, or 4.3 percent each year, through 2025. District 8, Upper Missouri G&T, headquartered in Sidney, MT, is projected to see an increase of 925 MW of load, or 9.3 percent each year.

Drilling rigs bring motors, lights, people and more need for electricity. At the time of publication, there are 208 drilling rigs in North Dakota (see graphics on page 5 for more statistics). "Every new rig they bring to the Williston Basin has to be manufactured. Once they get them made, they deploy them. I've heard anywhere from 225 to 240 sometime this summer and fall. That level of activity is expected for probably three to five years," Lundstrom says. "Then after that, once everything gets locked down, leases get held by



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Jay Lundstrom





production, meaning one well in every two square miles. I think each company is going to be satisfied with what they have and then they'll come back in a sort of orderly fashion. They will have one rig on a place to drill six or seven more holes, depending on the company."

Once the fever pitch of development tapers off, "the oil wells keep pumping for 30 to 40 years. It's not going away. It shouldn't drop off drastically," Lundstrom says.

Oil rigs, pipelines and wells run on electricity. More than a handful of rail yards are planned for the area. Lundstrom says each of those requires a megawatt of power. "Rail transportation costs more, but you can take the oil anywhere with rail. You're not limited to where your pipe ends, so you can actually get a price premium. That's why we're seeing a lot more of these rail yards come in."

The oil refinery in Mandan, ND, is expanding, and more refineries are on the drawing board. "The Thunder Butte refinery [to be built west of Makoti, ND] has a pretty good chance of happening because they're fairly far along in their permitting process," Lundstrom says. "The other refining plants have a fairly good chance of succeeding, too, because we do run into the seasonal diesel shortages in the fall and the spring in North Dakota,

although I don't know where they are in their permitting processes. When our members tell us they're expecting something big to pan out, we plan for it," Lundstrom says.

The need for electricity is apparent. Here are the ways Basin Electric is working to meet the present and growing need in the Bakken and continue to maintain reliable service for its entire membership.

Transmission: New high-voltage line

Basin Electric is in the process of permitting a 200-mile, high-voltage transmission line from the Antelope Valley Station north of Beulah, ND, to a substation just east of Tioga, ND.

According to Duey Marthaller, Basin Electric project manager, a specific route for a 345-kilovolt transmission line has not yet been identified within the preferred transmission corridor that starts at Antelope Valley.

Depending on when approvals are received, Marthaller says construction may start on the \$347-million project in mid-2014,

with an operational date in early 2016. "However, we won't start construction until all regulatory permits are received," he says. For more on the project, check out <http://bit.ly/NDTransmission>.



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Myron Steckler



Generation: Two new power plants

The Pioneer Generation Station, to be located in Williams County, ND, will be a 45-MW natural gas-fired peaking station. It was approved by Basin Electric's directors in November 2011. It will be located approximately 15 miles northwest of Williston, directly adjacent to a gas processing facility called Stateline I currently under construction. Both facilities will be tied into a Mountrail-Williams Electric Cooperative substation. Mountrail-Williams Electric is a Basin Electric Class C member.

The \$60-million Pioneer Generation Station will primarily be used to support the local transmission system and serve loads developing in the area, but would incorporate a clutch. If needed, the turbine could be disconnected from the generator, and the generator would act as a synchronous condenser, thus providing much-needed voltage support to the area.

The power plant is scheduled for commercial operation in early 2013. To learn more about the Pioneer Generation Station, check out <http://bit.ly/PioneerStation>.

Also, Basin Electric is planning to build a 45-MW capacity power plant between Alexander, ND, and Watford City, ND. The \$64.5-million Lonesome Creek Station was approved in February by Basin Electric's directors. It will also be fueled by natural gas.

According to Myron Steckler, project manager for both Pioneer Generation Station and Lonesome Creek Station, construction is planned to begin on the Lonesome Creek project this spring following receipt of all regulatory approvals. "We plan to have it ready for operation in the summer of 2013," he says.

"The best option is to build a generating unit that can be started quickly to meet demand," Steckler says. The Lonesome Creek unit will also be equipped with a clutch to allow operation as a synchronous condenser. "This allows the turbine to uncouple from the generator, allowing the generator to operate independent of the turbine. This feature, if needed, is used to provide fast-acting reactive power, which will stabilize the transmission system in the area."

Basin Electric produces the electricity that is distributed by Class C member McKenzie Electric, headquartered in Watford City. "This plant will tie into McKenzie Electric's

distribution system," Steckler says. "Basin Electric will own and operate the station. It is anticipated the unit will employ one person, and will have remote-start capability. The plant won't be operated on a 24/7 basis, but will operate as needed." For more on the Lonesome Creek project, check out <http://bit.ly/LonesomeCreek>.

Information: Broad study funded

Basin Electric is joining the state and others to fund a study that will help get a handle on how to meet the rapidly increasing demand.

Basin Electric, Montana-Dakota Utilities, the North Dakota Petroleum Council, and the North Dakota Industrial Commission are funding a \$284,000 load forecast to be conducted by Kadrmaz, Lee & Jackson of Bismarck, ND. The forecast will gauge load growth and identify potential projects such as transmission

lines and power plants needed to maintain system reliability.

Dale Niezwaag, Basin Electric senior legislative representative, says the concept for the study was identified by the Western North Dakota Energy Development Information Exchange Council created last fall by Gov. Jack Dalrymple. Mike Eggl, Basin Electric senior vice president of External Relations & Communications, and Lyle Witham, Basin Electric manager of environmental services, represent Basin Electric on the council. A similar study, funded by Basin Electric and the state, was completed in 2007, which looked at potential oil and gas load in the Bakken.

The new forecast study will not only look at load directly related to oil drilling, but also business, housing and other associated growth. It will also explore potential risks to the Bakken's continued development and how it may play out over the next 20 years.

"Basin Electric is interested in a comprehensive, third-party look at what the region holds for load growth," Niezwaag says. "While we've developed our own load forecast specific to the cooperative's needs, this study will augment that. It'll provide an independent gauge to which we can compare our study."

The western North Dakota load forecast is expected to be complete by late August 2012.

Upper Missouri G&T, headquartered in Sidney, MT, is projected to see an increase of 925 MW of load, or 9.3 percent each year.

In March 2012
North Dakota
became
#2
in oil production,
behind only Texas.
Associated Press

More, More, More

Airport boardings up

220,000 boardings in 2012

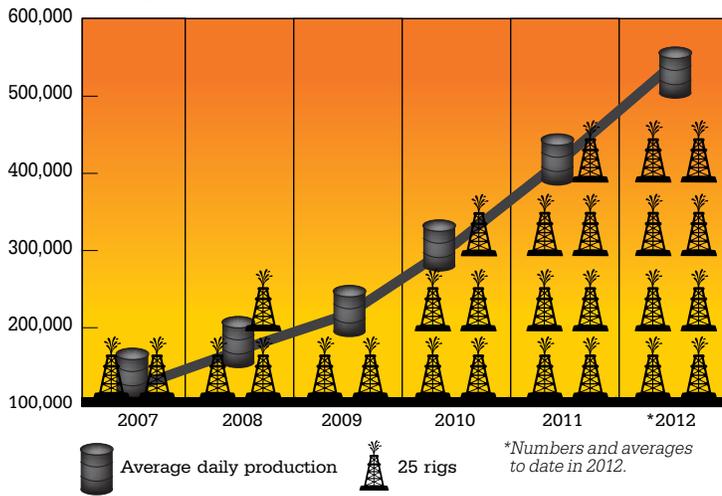
65% increase in 2011 (150,500 passengers)

Minot International Airport

Minot International Airport: built to handle **75,000-100,000** boardings per year.

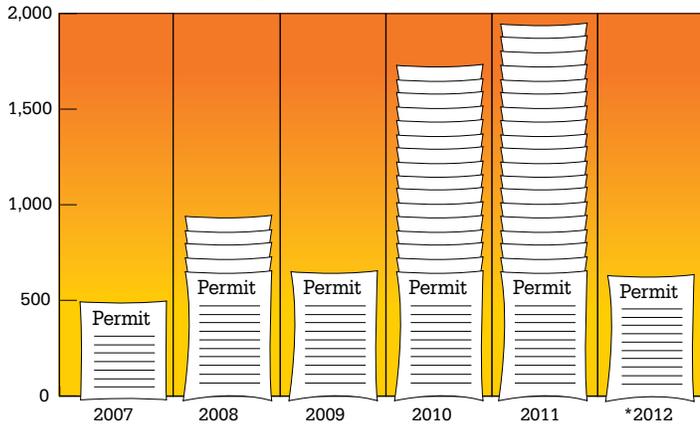
Minot International Airport Director Andy Solsvig says these percentage increases are unprecedented nationwide. Trends show the number of boardings will break 220,000 in 2012.

Rigs and average daily production



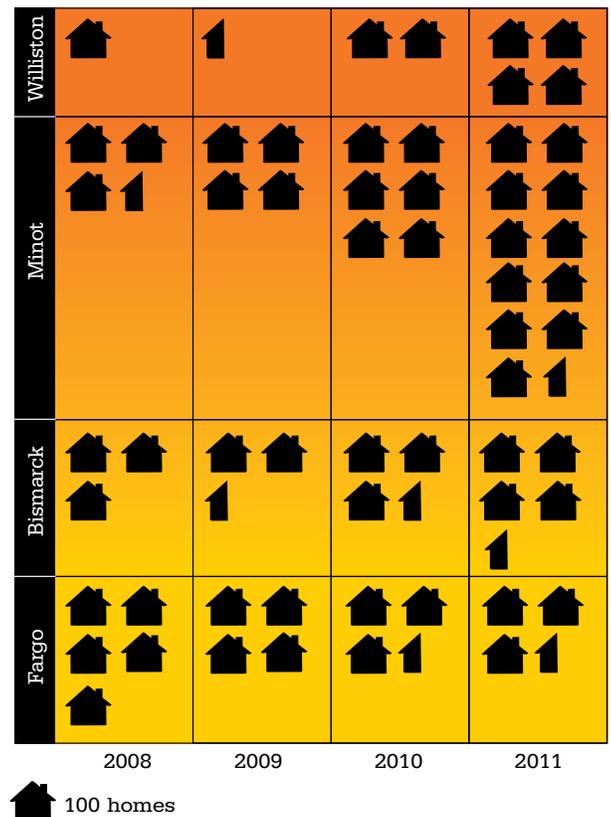
North Dakota Industrial Commission Oil and Gas Division

ND drilling permits



North Dakota Industrial Commission Oil and Gas Division

Housing permits



North Dakota Association of Builders