

# energy

## North Dakota delivers **growth & prosperity**



*"We originally came to North Dakota to purchase manufacturing equipment for our plant back East. After investigating power rates and availability, we decided to set up a plant right here."*

**P. Steven Helm**  
General Manager  
Sabin Metal West Corporation

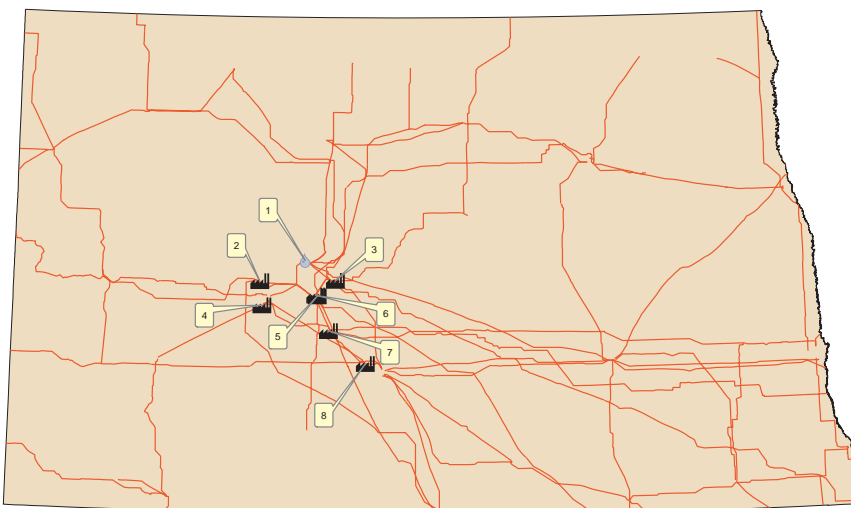
*The Sabin Metal Corporation is the largest, privately-owned precious metal refinery in America.*



### North Dakota natural resources power your profits

North Dakota is one of the leading producers and exporters of power in the nation with eight power generation facilities and a ninth announced in 2004. North Dakota exports nearly 70 percent of the electricity it produces, according to the Energy Information Administration (EIA). The EIA estimates the average retail price of electricity to North Dakota's industrial users, year-to-date through December 2003, was 4.12 cents per kilowatt hour as compared to 4.95 cents for the U.S.

#### Power Generation Facilities and Transmission Lines (115kV and above)



#	Utility Name Plant Name	Current Capacity City Where Located
1	US Corps of Engineers (Garrison Dam)	515 MW hydro (Garrison)
2	Basin Electric Power Cooperative (Antelope Valley)	900 MW coal (Beulah)
3	Great River Energy (Coal Creek)	1100 MW coal (Underwood)
4	Otter Tail Power Cooperative (Coyote)	414 MW coal (Beulah)
5	Basin Electric Power Cooperative (Leland Olds)	650 MW coal (Stanton)
6	Great River Energy (Stanton)	202 MW coal (Stanton)
7	Minnkota Power Cooperative, Inc. (Milton R. Young)	705 MW coal (Center)
8	Montana-Dakota Utilities Company (R.M. Heskett)	100 MW coal (Mandan)



**Dakota Gasification Co.**  
Great Plains Synfuels Plant

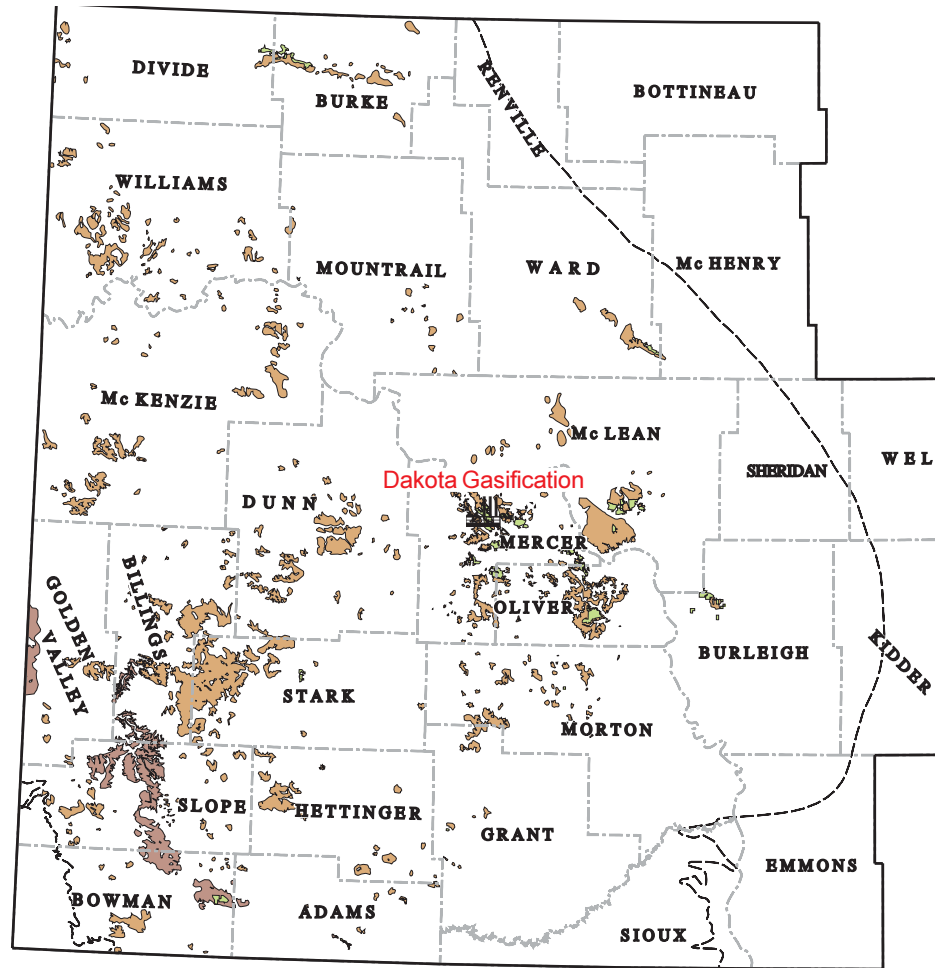
- Only commercial scale coal gasification plant in North America that manufactures natural gas.
- Produces about 160 mmscf (million cubic feet) of natural gas daily and over 54 billion standard cubic feet of natural gas annually.
- Also produces anhydrous ammonia, ammonium sulfate, cresylic acid, phenol, krypton and xenon gases, liquid nitrogen, naphtha, methanol and carbon dioxide.

**Adjacent Industrial Sites for High Energy Users**

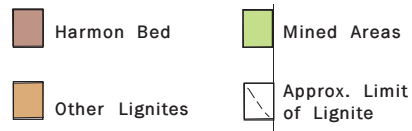
- Land – Several sites available adjacent to \$4 billion dollar energy complex with no long permitting process.
- Water – Nearby Lake Sakakawea is the third largest reservoir in the US, and rights to draw additional capacity can be obtained in 30 days, rather than one to two years.
- Electricity – Adjacent to Antelope Valley Power Plant. Long-term, low-cost sources of electricity available next door with cost of production stable and will remain so into the future.
- Transportation – Burlington Northern Santa Fe Railroad provides daily rail service to the area. Newly upgraded local airport, with larger Bismarck, Minot and Dickinson airports just over an hour away.
- Skilled labor force – Located five miles north of Beulah. Three-county coal and energy region has a population over 20,000.

**North Dakota is home to vast lignite reserves**

Lignite production primarily takes place in three western North Dakota counties – Mercer, Oliver and McLean (see below). Electricity produced from lignite is distributed throughout the area served by North Dakota, Minnesota, South Dakota and Montana. Sales of surplus generated electricity are also made to other states outside the region.



Map courtesy of North Dakota Geological Survey

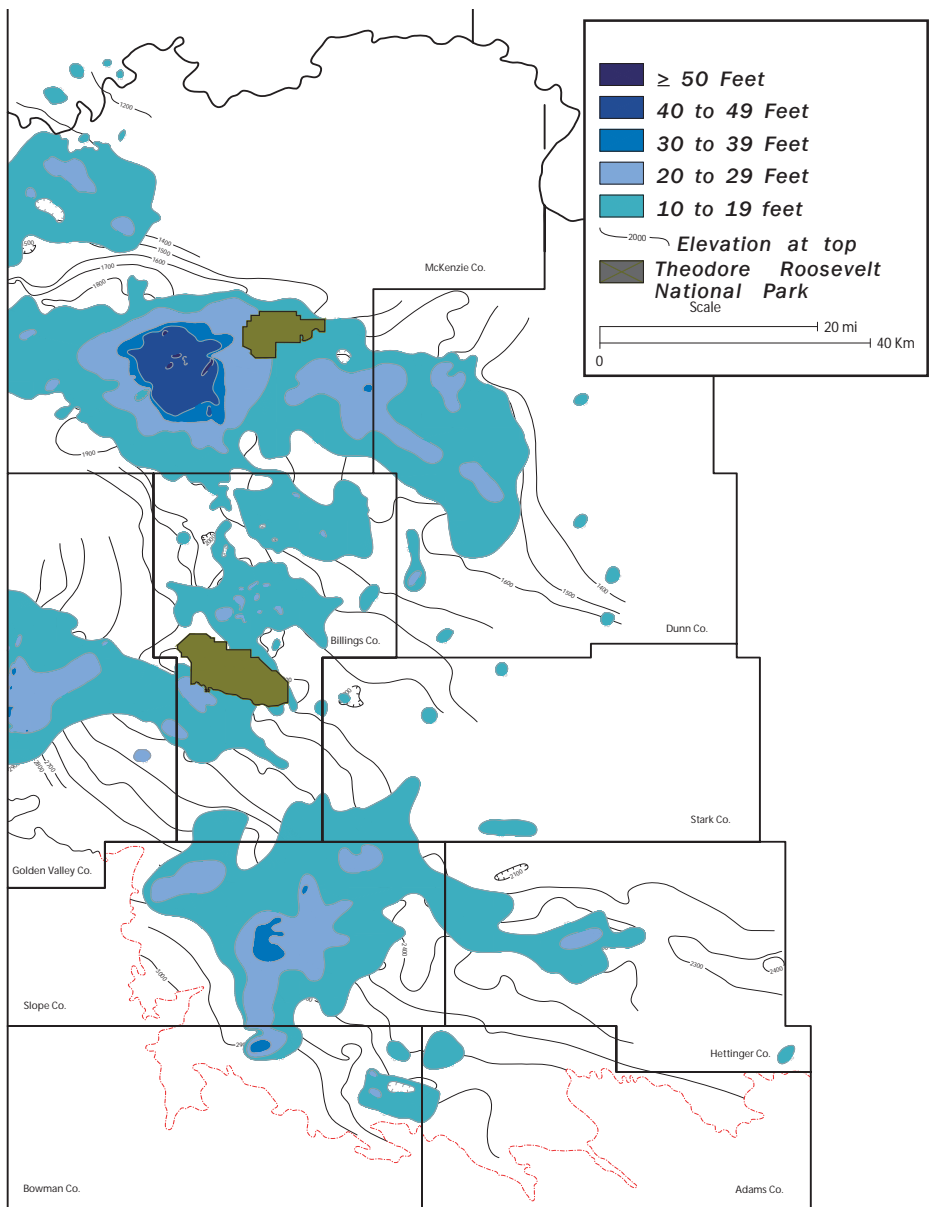


Some photos provided by MDU Resource Group, Inc. and Basin Electric Power Cooperative.



## Harmon lignite bed reaches deep in western ND

The Harmon lignite bed in western North Dakota is the most extensive lignite in the North Dakota portion of the Williston Basin. The Harmon bed (see below) averages about 18 feet thick with a maximum thickness of 53 feet in south central McKenzie County. The Harmon bed is mineable by surface methods in western Golden Valley County, southwestern Billings County, central Slope County and north central and northeastern Bowman County.



## Fast Energy Facts

**Natural Gas and Electricity**  
 During 2003, 57.9 billion cubic feet of natural gas was produced and 51.6 billion cubic feet of natural gas was processed in North Dakota. The state houses the only commercial-sized coal gasification plant in the United States; Great Plains Synfuels.

**Wind**  
 North Dakota has an outstanding wind resource and provides more available wind for development than any other state. North Dakota has enough energy from good wind areas, those of wind power Class 4 or higher, to be number one among all contiguous states in potential wind electrical production.

**Coal**  
 North Dakota has the single largest deposit of lignite coal in the world. With an estimated 25 billion tons of recoverable reserves, North Dakota has enough lignite to last more than 835 years at today's rate of production.

For more information about North Dakota's energy resources, contact the North Dakota Department of Commerce at 701-328-5300 or 1-866-4dakota or email [4dakota@state.nd.us](mailto:4dakota@state.nd.us).



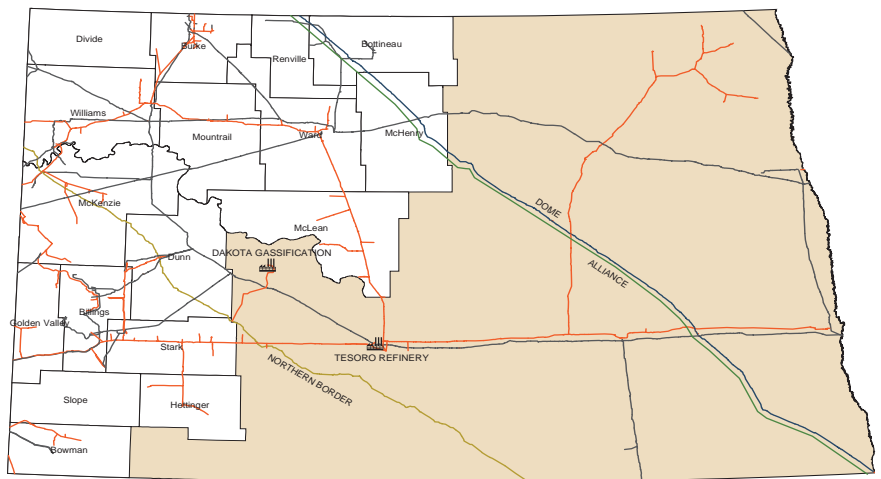
### North Dakota Gas Facts

- The state's only operating crude oil refinery (in Mandan) has a daily capacity of about 60,000 barrels.
- There are nine natural gas processing plants operating in western North Dakota. They are near Tioga, Ambrose, Killdeer, Lignite, Rhame, Gorham, Arnegard, Trotters and Marmath.

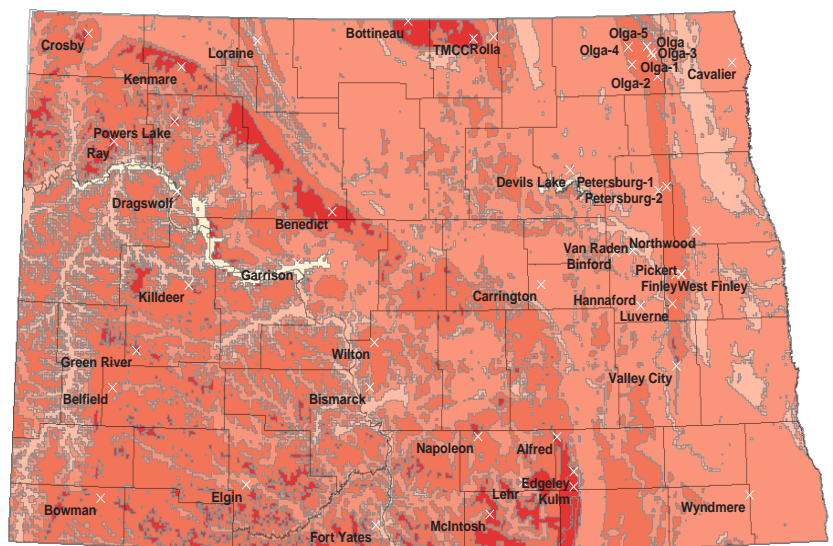
### North Dakota Oil Facts

- North Dakota is the ninth largest oil-producing state with nearly 30 million barrels produced in 2003.
- At the end of 2003, there were 3,143 wells capable of producing oil and gas in North Dakota.
- Horizontal or directional drilling accounted for 73% of the new wells drilled in 2003 and 33% of the state's oil production.

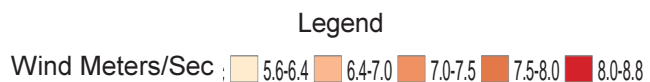
### Natural Gas and Oil Pipelines with Processing Facilities



### Wind Resources and Monitoring Stations



Map courtesy of National Renewable Energy



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