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State Energy Profile - North Dakota

Energy Information Administration - State Energy Profiles

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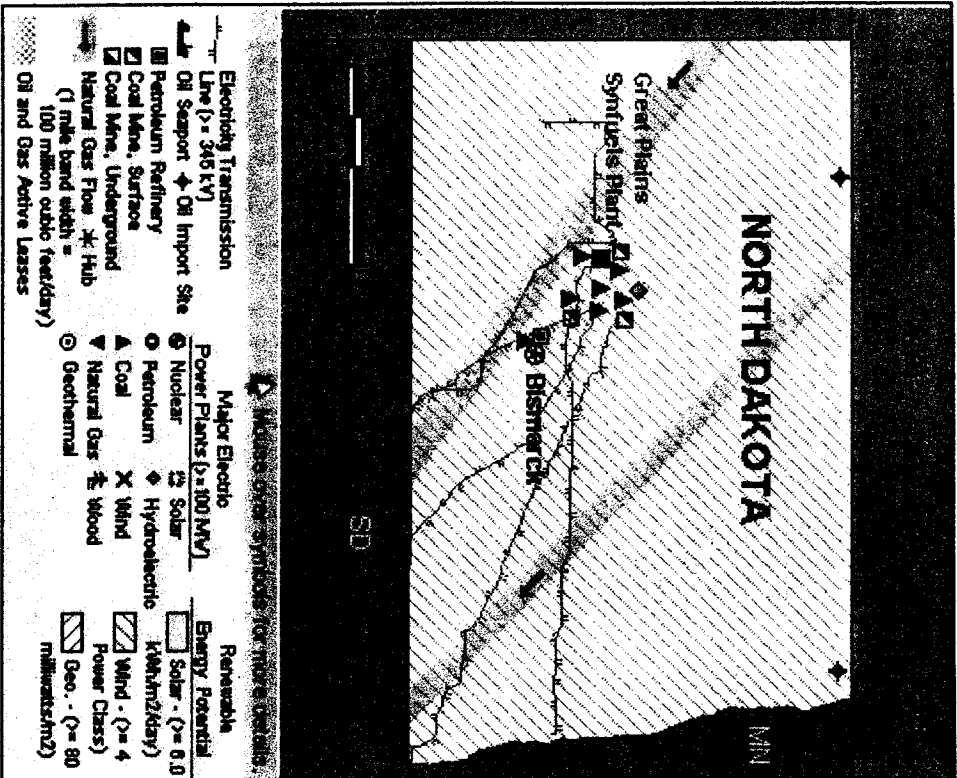
North Dakota



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Last Update: April 17, 2008
Next Update: April 24, 2008

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North Dakota Quick Facts

- North Dakota oil output accounts for about 2 percent of total U.S. crude oil production.
- Due partly to high heating demand in winter, North Dakota's per capita energy consumption is among the highest in the Nation.
- Nearly all of the electricity generated in North Dakota is produced by coal-fired power plants.
- North Dakota is one of the few States that allow the statewide use of conventional motor gasoline. (Most States require the use of specific gasoline blends in non-attainment areas due to air-quality considerations.)

Overview

Resources and Consumption

North Dakota has considerable fossil fuel reserves. Coal is extracted from large surface mines in central North Dakota. Substantial crude oil and natural gas reserves are located in the Williston Basin, in the western part of the State. Although a low population largely accounts for the State's low total energy consumption, North Dakota's per capita energy consumption ranks among the highest in the Nation, in large part due to high demand for heating during cold winters and an energy-intensive economy. Industry accounts for nearly one-half of the State's total energy consumption.

Petroleum

North Dakota is a substantial crude oil-producing State with an output typically equal to roughly 2 percent of total annual U.S. production. The State is also an entrance point for Canadian crude oil transported via pipeline to U.S. Midwest refining markets. A small petroleum refinery near Bismarck refines crude oil extracted from the Williston Basin, which covers eastern Montana and the western Dakotas, as well as a small amount of Canadian crude. The refinery produces transportation fuels primarily for the northern Great Plains States and the Twin Cities area. A small new refinery has been proposed on the Fort Berthold Indian reservation in western North Dakota. If constructed, it would be the first new crude oil refinery in the United States in decades.

Ethanol is produced at four ethanol plants in North Dakota, and a fifth is under construction, giving the State considerable ethanol production capacity. North Dakota is a moderate consumer of ethanol in blended motor gasoline, although it is one of the few States in the Nation that allow the statewide use of conventional motor gasoline. (Most States require the use of specific gasoline blends in non-attainment areas due to air-quality considerations.)

Natural Gas

North Dakota typically produces roughly 1 percent of the Nation's annual natural gas production. The majority of the State's supply is transported via major pipelines originating in Montana and western Canada on their way to U.S. Midwest consumption markets. North Dakota has the distinction of being one of only two States that produce synthetic natural gas. The single largest source of synthetic gas in the United States is the Great Plains Synfuels Plant in Beulah, North Dakota, which annually produces more than 54 billion cubic feet of gas from coal. Overall State usage of natural gas is low, with the industrial sector leading State consumption. Over two-fifths of the households in North Dakota use natural gas as their primary source of energy for home heating.

Coal, Electricity, and Renewables

Electricity generation and demand are both low in North Dakota, commensurate with the State's population. Coal-fired plants provide nearly all of North Dakota's electricity generation. Most of the coal used for power generation is supplied by several large surface mines in the central part of the State. State coal production is substantial, and North Dakota brings in only small amounts of coal from other States. Hydroelectric dams account for most of the State's non-coal-generated electricity. The Garrison Dam, located about 75 miles northwest of Bismarck, is North Dakota's fifth largest plant in electricity generation capability. The vast majority of the State is rich in wind energy potential, a dozen wind power projects are currently operational, and the State has plans for further development. Nearly three-tenths of North Dakota households use electricity as their primary energy source for home heating.

Data

| Economy | | North Dakota | U.S. Rank | Period |
|--|--|--------------------|-----------|--------|
| Population and Employment | | 0.6 million | 48 | 2007 |
| Population | | 0.4 million | 48 | 2007 |
| Civilian Labor Force | | \$34,846 | 43 | 2007 |
| Per Capita Personal Income | | North Dakota | U.S. Rank | Period |
| Industry | | \$26.4 billion | 49 | 2006 |
| Gross Domestic Product by State | | 39.3 million acres | 7 | 2002 |
| Land in Farms | | | | |
| Market Value of Agricultural Products Sold | | \$3.2 billion | 24 | 2002 |

Prices

| | | | |
|---|-----------------------|------------------------|--------|
| Petroleum | | | |
| <u>Domestic Crude Oil First Purchase</u> | North Dakota | U.S. Avg. | Period |
| | \$84.86/barrel | \$87.06/barrel | Jan-08 |
| <u>No. 2 Heating Oil, Residential</u> | — | \$3.14/gal | Jan-08 |
| <u>Regular Motor Gasoline Sold Through Retail Outlets (Excluding Taxes)</u> | \$2.604/gal | \$2.545/gal | Jan-08 |
| <u>State Tax Rate on Motor Gasoline (other taxes may apply)</u> | \$0.23/gal | \$0.2144/gal | Jan-08 |
| <u>No. 2 Diesel Fuel Sold Through Retail Outlets (Excluding Taxes)</u> | — | \$2.798/gal | Jan-08 |
| <u>State Tax Rate on On-Highway Diesel (other taxes may apply)</u> | \$0.23/gal | \$0.22/gal | Jan-08 |
| Natural Gas | | | |
| <u>Wellhead</u> | North Dakota | U.S. Avg. | Period |
| | \$6.52/thousand cu ft | \$6.40/thousand cu ft | 2006 |
| <u>City Gate</u> | \$7.66/thousand cu ft | \$8.37/thousand cu ft | Jan-08 |
| <u>Residential</u> | \$9.06/thousand cu ft | \$12.12/thousand cu ft | Jan-08 |
| Coal | | | |
| <u>Average Open Market Sales Price</u> | North Dakota | U.S. Avg. | Period |
| <u>Delivered to Electric Power Sector</u> | \$10.70/short ton | \$25.16/short ton | 2006 |
| | \$ 1.15/million Btu | \$ 1.78/million Btu | Dec-07 |
| Electricity | | | |
| <u>Residential</u> | North Dakota | U.S. Avg. | Period |
| | 6.96 cents/k Wh | 10.31 cents/k Wh | Dec-07 |
| <u>Commercial</u> | 6.60 cents/k Wh | 9.41 cents/k Wh | Dec-07 |
| <u>Industrial</u> | 5.12 cents/k Wh | 6.25 cents/k Wh | Dec-07 |

➔ See more Price data for all States

Reserves & Supply

| | | | |
|---|-----------------------------|---------------|--------|
| Reserves | North Dakota | Share of U.S. | Period |
| Crude Oil | 412 million barrels | 2.0% | 2006 |
| Dry Natural Gas | 479 billion cu ft | 0.2% | 2006 |
| Natural Gas Liquids | 55 million barrels | 0.6% | 2006 |
| Recoverable Coal at Producing Mines | 1,145 million short tons | 6.0% | 2006 |
| Rotary Rigs & Wells | North Dakota | Share of U.S. | Period |
| Rotary Rigs in Operation | 8 | 0.5% | 2007 |
| Crude Oil Producing Wells | 3,196 | 0.6% | 2007 |
| Natural Gas Producing Wells | 200 | 0.0% | 2006 |
| Production | North Dakota | Share of U.S. | Period |
| Crude Oil | 3,917 thousand barrels | 2.5% | Nov-07 |
| Natural Gas - Marketed | 55,273 million cu ft | 0.3% | 2006 |
| Coal | 30,411 thousand short tons | NA | 2006 |
| Capacity | North Dakota | Share of U.S. | Period |
| Crude Oil Refinery Capacity (as of Jan. 1) | 58,000 barrels/calendar day | 0.3% | 2007 |
| Electric Power Industry Net Summer Capability | 4,839 MW | 0.5% | 2006 |
| Net Electricity Generation | North Dakota | Share of U.S. | Period |
| Total Net Electricity Generation | 2,843 thousand MWh | 0.8% | Dec-07 |
| Petroleum-Fired | 8 thousand MWh | 0.3% | Dec-07 |
| Natural Gas-Fired | 1 thousand MWh | 0.0% | Dec-07 |
| Coal-Fired | 2,669 thousand MWh | 1.5% | Dec-07 |
| Nuclear | — | 0.0% | Dec-07 |
| Hydroelectric | 115 thousand MWh | 0.6% | Dec-07 |
| Other Renewables | 45 thousand MWh | 0.5% | Dec-07 |
| Stocks | North Dakota | Share of U.S. | Period |
| Motor Gasoline (Excludes Pipelines) | — | — | Jan-08 |

| | | | |
|--|---|---|--------|
| <u>Distillate Fuel Oil (Excludes Pipelines)</u> | — | — | Jan-08 |
| <u>Natural Gas in Underground Storage</u> | — | — | Jan-08 |
| <u>Petroleum Stocks at Electric Power Producers</u> | W | W | Dec-07 |
| <u>Coal Stocks at Electric Power Producers</u> | W | W | Dec-07 |
| <u>Production Facilities</u> | North Dakota | | |
| <u>Major Coal Mines</u> | Freedom Mine/The Coteau Properties Co., Falkirk Mine/The Falkirk Mining Co., Center Mine/BNI Co. Ltd. | | |
| <u>Petroleum Refineries</u> | Tesoro West Coast (Mandan) | | |
| <u>Major Non-Nuclear Electricity Generating Plants</u> | Coal Creek (Great River Energy), Antelope Valley (Basin Electric Power Coop), Milton R Young (Minnkota Power Coop, Inc), Leland Olds (Basin Electric Power Coop), Garrison (USCE-Missouri River District) | | |
| <u>Nuclear Power Plants</u> | None | | |

➔ See more Reserves and Supply data for all States

Distribution & Marketing

| | |
|--------------------------------------|--|
| <u>Distribution Centers</u> | North Dakota |
| <u>Oil Seaports/Oil Import Sites</u> | Neché, Portal. |
| <u>Natural Gas Market Centers</u> | None |
| <u>Major Pipelines</u> | North Dakota |
| <u>Crude Oil</u> | Belle Fourche, Koch, Lakehead, Little Missouri, Madador, Magellan, Portal. |
| <u>Petroleum Product</u> | Cenex, Kaneb, Magellan. |
| <u>Liquefied Petroleum Gases</u> | Alliance, Cochin. |

Interstate Natural Gas Pipelines

Alliance Pipeline Co., Northern Border Pipeline Co., Viking Gas Transmission Co., Williston Basin Pipeline Co.

| | North Dakota | Share of U.S. | Period |
|---------------------------|--------------|---------------|--------|
| Fueling Stations | 930 | 0.6% | 2006 |
| Motor Gasoline | 14 | 0.6% | 2007 |
| Liquefied Petroleum Gases | 4 | 0.5% | 2007 |
| Compressed Natural Gas | 24 | 1.7% | 2007 |
| Ethanol | 0 | 0.0% | 2007 |

See more Distribution and Marketing data for all States

Consumption

| | North Dakota | U.S. Rank | Period |
|----------------------------|----------------------------|---------------|--------|
| per Capita | 648 million Btu | 4 | 2005 |
| Total Energy | North Dakota | Share of U.S. | Period |
| by Source | 412,155 billion Btu | 0.4% | 2005 |
| Total Energy | 25,665 thousand barrels | 0.3% | 2005 |
| Total Petroleum | 8,716 thousand barrels | 0.3% | 2005 |
| Motor Gasoline | 9,798 thousand barrels | 0.7% | 2005 |
| Distillate Fuel | 3,370 thousand barrels | 0.5% | 2005 |
| Liquefied Petroleum Gases | 646 thousand barrels | 0.1% | 2005 |
| Jet Fuel | 53,338 million cu ft | 0.2% | 2006 |
| Natural Gas | 31,073 thousand short tons | 2.8% | 2006 |
| Coal | North Dakota | Share of U.S. | Period |
| by End-Use Sector | 63,746 billion Btu | 0.3% | 2005 |
| Residential | 60,875 billion Btu | 0.3% | 2005 |
| Commercial | 195,363 billion Btu | 0.6% | 2005 |
| Industrial | 92,171 billion Btu | 0.3% | 2005 |
| Transportation | North Dakota | Share of U.S. | Period |
| for Electricity Generation | 14 thousand barrels | 0.3% | Dec-07 |
| Petroleum | 8 million cu ft | 0.0% | Dec-07 |
| Natural Gas | 2,246 thousand short tons | 2.4% | Dec-07 |
| Coal | | | |

| for Home Heating (share of households) | North Dakota | U.S. Avg. | Period |
|--|--------------|-----------|--------|
| Natural Gas | 43% | 51.2% | 2000 |
| Fuel Oil | 9% | 9.0% | 2000 |
| Electricity | 29% | 30.3% | 2000 |
| Liquefied Petroleum Gases | 16% | 6.5% | 2000 |
| Other/None | 3% | 1.8% | 2000 |

➔ See more Consumption data for all States

| Environment | North Dakota | | |
|------------------------------------|---|---------------|--------|
| Special Programs | North Dakota Red River Valley (Grand Forks, Winnipeg, Manitoba, Canada) | | |
| Clean Cities Coalitions | North Dakota | | |
| Alternative Fuels | 1,521 | Share of U.S. | Period |
| Alternative-Fueled Vehicles in Use | 3 | 0.3% | 2005 |
| Ethanol Plants | 3 | 2.1% | 2008 |
| Ethanol Plant Capacity | 100 million gal/year | 1.3% | 2008 |
| Ethanol Use in Gasohol | 10,502 thousand gal | 0.3% | 2004 |
| Electric Power Industry Emissions | North Dakota | Share of U.S. | Period |
| Carbon Dioxide | 31,266,845 metric tons | 1.3% | 2006 |
| Sulfur Dioxide | 118,664 metric tons | 1.2% | 2006 |
| Nitrogen Oxide | 68,059 metric tons | 1.8% | 2006 |

➔ See more Environment data for all States

— = No data reported; NA = Not available; W = Withheld to avoid disclosure of individual company data.

Recent Updates

- **Week of April 17, 2008**
 - Semi-annual update to State tax rates to Jan. 2008 for:
 - Motor gasoline
 - On-highway diesel fuel
- **Week of March 20, 2008**
 - Updated State lists of the top five major non-nuclear electricity generating plants to 2006
 - Updated monthly electricity statistics, including the price of electricity by sector and the amount of electricity generation by fuel, to December 2007
- **Week of March 13, 2008**

State energy consumption data for 2005 for these data elements:

 - Total energy consumption
 - Total energy consumption per capita
 - Total energy consumption by each sector – residential, commercial, industrial, and transportation.
- **Week of March 6, 2008**

Additional infrastructure sites as of 2006 on the State energy maps and on the U.S. maps. (For details, see expanded and updated [Maps Notes and Sources](#).)

The names of U.S. infrastructure sites in context on each State energy map. Just place your cursor over any map symbol to see details.

A delineation of oil and gas active leases offshore in the Gulf of Mexico (see [Alabama](#), [Florida](#), [Louisiana](#), [Mississippi](#), and [Texas](#)).

Map symbols that show the locations of five liquefied natural gas (LNG) import terminals (denoted by ✕) nearing completion in Massachusetts, Texas, and Louisiana, and a new Strategic Petroleum Reserve site in Mississippi.

Related Reports

- State Consumption, Prices and Expenditures (SEDS) tables that display comprehensive State data from as early as 1960 to the present
- State Electricity Profiles tables that provide time series data from 1990 forward for key electricity indicators by State
- State Compendium of Nuclear Power Plants State-by-State reports on the nuclear industry
- Natural Gas Residential Choice Programs written overviews of the status of natural gas industry restructuring in each State, focusing on the residential customer class
- Status of Electricity Restructuring by State annotated map showing details of the status of electricity restructuring in each State
- Regional Energy Profiles reports and maps that explore regional variations in U.S. energy consumption

References

- Notes & Sources: Maps | Data
- State Data Directory
- About State Energy Profiles

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