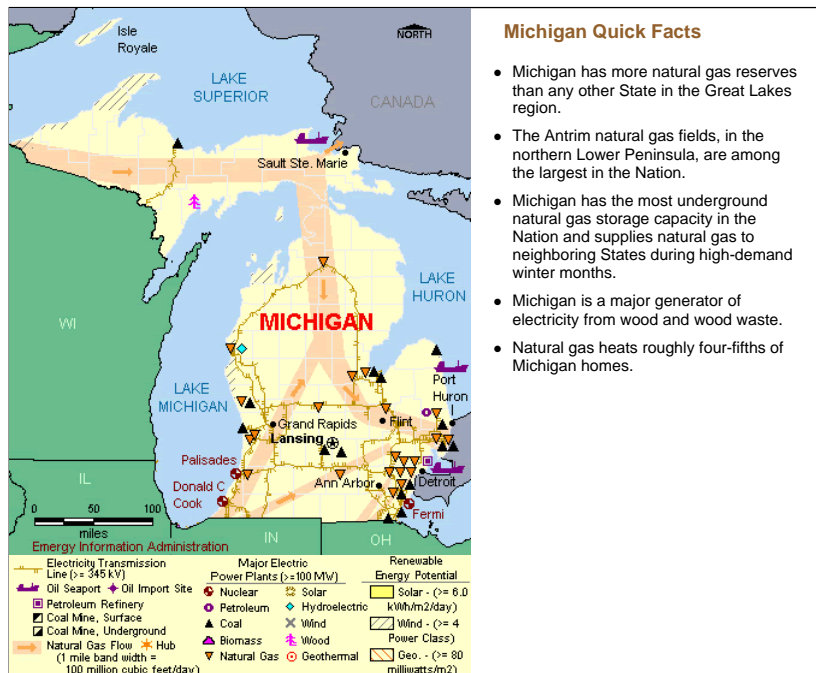


Michigan

STATE ENERGY PROFILES

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 Last Update: November 29, 2007
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Overview

Resources and Consumption

Michigan has substantial natural gas reserves—more than any other State in the Great Lakes region—but is relatively limited in other energy resources. The State's Antrim natural gas fields in the northern portion of the Lower Peninsula are among the largest in the United States. Michigan has some renewable energy potential, particularly from wood and wood waste in the northern portion of the State, wind energy near the Great Lakes shoreline and in the Thumb region of the State, and corn grown in southern Michigan. Michigan's total energy consumption is high due in part to its large population, northern climate, and active industrial sector. Energy-intensive activities in the State include durable goods manufacturing, such as by the automotive, glass, and metal casting industries.

Petroleum

Michigan has some crude oil production from small wells scattered across the Lower Peninsula and one 100,000-barrel-per-day refinery in Detroit. Two major crude oil pipelines from western Canada, both part of the Lakehead Pipeline System, enter Michigan from the northwest and southwest and supply both Michigan and eastern Canada. Several petroleum product pipeline systems supply Michigan consumption markets, including the Wolverine Pipeline system, which runs from Chicago area refineries to the Detroit area. Michigan's consumption of petroleum products, particularly liquefied petroleum gases (LPG), is high; Michigan is the largest residential LPG market in the Nation. Although Michigan does not require the use of motor gasoline blended with ethanol as many States do, the Detroit area requires the use of gasoline blended to reduce evaporative emissions that contribute to ozone formation. As a major corn producer, Michigan also has substantial ethanol production capacity, and additional plants are currently under construction.

Natural Gas

Natural gas production in Michigan is substantial and supplies nearly three-tenths of State demand. Natural gas wells are concentrated in the Antrim field in the northern portion of the Lower Peninsula. Several major pipelines, including the Vector Pipeline from Illinois and the Great Lakes Gas Transmission line from western Canada, satisfy the remainder of the State's natural gas demand, as they cross Michigan on the way to markets in the U.S. Northeast and eastern Canada. With over one-tenth of U.S. capacity, Michigan has the most underground natural gas storage capacity in the Nation and supplies natural gas to neighboring States during high-demand winter months. Driven largely by the residential sector, Michigan's natural gas consumption is high. Nearly four-fifths of Michigan households use natural gas as their primary energy source for home heating.

Coal, Electricity, and Renewables

Coal dominates electricity generation in Michigan, supplying nearly three-fifths of the market. Most of the State's coal is supplied by Wyoming and Montana and transported by rail to the western end of Lake Superior and then by ship to power plants largely located along the Great Lakes shoreline. Michigan also obtains coal, principally by rail, from eastern sources, including West Virginia, Kentucky, and Pennsylvania. Michigan's three nuclear power plants supply more than one-fourth of the State's electricity generation, while natural gas fuels much of the remainder. Although Michigan is a major generator of electricity from wood and wood waste, has many small hydroelectric plants, and has several plants that generate electricity using methane recovered from landfills and anaerobic digesters, renewable power generation contributes

minimally to the State electricity grid. Electricity generation in Michigan is high, as is overall per capita electricity consumption. However, residential electricity use in Michigan is lower than the national average, in part due to low demand for air-conditioning during mild summers and to a reliance on natural gas for home heating. Less than one-tenth of Michigan households rely on electricity as their primary source of energy for home heating. Michigan currently has several ethanol and biodiesel production plants in operation, with many more plants currently under construction or planned.

Data

Economy

Population and Employment	Michigan	U.S. Rank	Period
Population	10.1 million	8	2006
Civilian Labor Force	5.1 million	8	2006
Per Capita Personal Income	\$33,847	31	2006
Industry	Michigan	U.S. Rank	Period
Gross Domestic Product by State	\$381.0 billion	9	2006
Land in Farms	10.1 million acres	30	2002
Market Value of Agricultural Products Sold	\$3.8 billion	22	2002

Prices

Petroleum	Michigan	U.S. Avg.	Period
Domestic Crude Oil First Purchase	\$68.37/barrel	\$67.78/barrel	Aug-07
No. 2 Heating Oil, Residential	\$2.569/gal	\$2.507/gal	Aug-07
Regular Motor Gasoline Sold Through Retail Outlets (Excluding Taxes)	\$2.396/gal	\$2.294/gal	Aug-07
State Tax Rate on Motor Gasoline (other taxes may apply)	\$0.19/gal	\$0.215/gal	Jul-07
No. 2 Diesel Fuel Sold Through Retail Outlets (Excluding Taxes)	\$2.419/gal	\$2.368/gal	Aug-07
State Tax Rate on On-Highway Diesel (other taxes may apply)	\$0.15/gal	\$0.2205/gal	Jul-07
Natural Gas	Michigan	U.S. Avg.	Period
Wellhead	\$5.30/thousand cu ft	\$7.33/thousand cu ft	2005
City Gate	\$7.31/thousand cu ft	\$7.45/thousand cu ft	Aug-07
Residential	\$14.94/thousand cu ft	\$16.85/thousand cu ft	Aug-07
Coal	Michigan	U.S. Avg.	Period
Average Open Market Sales Price Delivered to Electric Power Sector	—	\$25.16/short ton	2006
	W	\$ 1.76/million Btu	Jul-07
Electricity	Michigan	U.S. Avg.	Period
Residential	10.73 cents/kWh	11.05 cents/kWh	Aug-07
Commercial	9.08 cents/kWh	10.05 cents/kWh	Aug-07
Industrial	6.74 cents/kWh	6.84 cents/kWh	Aug-07

➔ See more Price data for all States

Reserves & Supply

Reserves	Michigan	Share of U.S.	Period
Crude Oil	62 million barrels	0.3%	2005
Dry Natural Gas	2,910 billion cu ft	1.4%	2005
Natural Gas Liquids	39 million barrels	0.5%	2005
Recoverable Coal at Producing Mines	—	—	2006
Rotary Rigs & Wells	Michigan	Share of U.S.	Period
Rotary Rigs in Operation	2	0.1%	2006
Crude Oil Producing Wells	4,195	0.8%	2006
Natural Gas Producing Wells	8,900	2.1%	2005
Production	Michigan	Share of U.S.	Period
Crude Oil	503 thousand barrels	0.3%	Jun-07
Natural Gas - Marketed	261,112 million cu ft	1.4%	2005
Coal	—	—	2006
Capacity	Michigan	Share of U.S.	Period
Crude Oil Refinery Capacity (as of Jan. 1)	100,000 barrels/calendar day	0.6%	2007
Electric Power Industry Net Summer Capability	30,189 MW	3.1%	2006
Net Electricity Generation	Michigan	Share of U.S.	Period
Total Net Electricity Generation	11,902 thousand MWh	2.8%	Aug-07
Petroleum-Fired	94 thousand MWh	1.6%	Aug-07
Natural Gas-Fired	2,077 thousand MWh	1.7%	Aug-07
Coal-Fired	6,518 thousand MWh	3.4%	Aug-07
Nuclear	2,896 thousand MWh	4.0%	Aug-07
Hydroelectric	101 thousand MWh	0.5%	Aug-07
Other Renewables	216 thousand MWh	2.5%	Aug-07
Stocks	Michigan	Share of U.S.	Period
Motor Gasoline (Excludes Pipelines)	1,428 thousand barrels	2.0%	Aug-07
Distillate Fuel Oil (Excludes Pipelines)	1,095 thousand barrels	1.1%	Aug-07
Natural Gas in Underground Storage	941,018 million cu ft	13.0%	Aug-07
Petroleum Stocks at Electric Power Producers	993 thousand barrels	2.3 %	Aug-07
Coal Stocks at Electric Power Producers	8,417 thousand tons	5.9%	Aug-07
Production Facilities	Michigan		
Major Coal Mines	None		

Petroleum Refineries	Marathon Petroleum Co. LLC (Detroit)
Major Non-Nuclear Electricity Generating Plants	Monroe (Detroit Edison Co), Ludington (Consumers Energy Co), Dan E Karn (Consumers Energy Co), St Clair (Detroit Edison Co), Midland Cogeneration Venture (Midland Cogeneration Venture)
Nuclear Power Plants	Donald C. Cook; Enrico Fermi; Palisades

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Distribution & Marketing

Distribution Centers	Michigan
Oil Seaports/Oil Import Sites	Detroit, Trenton, Wyandotte, Ecorse, River Rouge, Dearborn, Essexville, Bay City, Ludington, Muskegon, Escanaba, Port Huron, Sault St. Marie.
Natural Gas Market Centers	None
Major Pipelines	Michigan
Crude Oil	Lakehead, Marathon, Shell.
Petroleum Product	BP Amoco, Buckeye, Marathon, Ultramar-Diamond Shamrock, Wolverine.
Liquefied Petroleum Gases	Cochin, Lakehead, Shell.
Interstate Natural Gas Pipelines	ANR Pipeline Co., ANR Storage Co., Great Lakes Gas Transmission Ltd, Northern Natural Gas Co., Panhandle Eastern Pipe Line Company, Vector Pipeline LP

Fueling Stations	Michigan	Share of U.S.	Period
Motor Gasoline	5,076	3.0%	2006
Liquefied Petroleum Gases	84	3.4%	2006
Compressed Natural Gas	15	2.0%	2006
Ethanol	28	2.9%	2006
Other Alternative Fuels	18	1.6%	2006

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Consumption

per Capita	Michigan	U.S. Rank	Period
Total Energy	309 million Btu	34	2004
by Source	Michigan	Share of U.S.	Period
Total Energy	3,119,425 billion Btu	3.1%	2004
Total Petroleum	198,085 thousand barrels	2.6%	2005
Motor Gasoline	119,584 thousand barrels	3.6%	2005
Distillate Fuel	30,315 thousand barrels	2.0%	2005
Liquefied Petroleum Gases	23,157 thousand barrels	3.1%	2005
Jet Fuel	3,431 thousand barrels	0.6%	2005
Natural Gas	914,107 million cu ft	4.2%	2006
Coal	—	—	2005
by End-Use Sector	Michigan	Share of U.S.	Period
Residential	799,157 billion Btu	3.8%	2004
Commercial	628,949 billion Btu	3.5%	2004
Industrial	884,528 billion Btu	2.6%	2004
Transportation	806,788 billion Btu	2.9%	2004
for Electricity Generation	Michigan	Share of U.S.	Period
Petroleum	184 thousand barrels	1.8%	Aug-07
Natural Gas	20,218 million cu ft	1.9%	Aug-07
Coal	3,465 thousand short tons	3.5%	Aug-07
for Home Heating (share of households)	Michigan	U.S. Avg.	Period
Natural Gas	78%	51.2%	2000
Fuel Oil	4%	9.0%	2000
Electricity	7%	30.3%	2000
Liquefied Petroleum Gases	9%	6.5%	2000
Other/None	2%	1.8%	2000

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Environment

Special Programs	Michigan		
Clean Cities Coalitions	Ann Arbor, Detroit, Lansing		
Alternative Fuels	Michigan	Share of U.S.	Period
Alternative-Fueled Vehicles in Use	14,335	2.8%	2003
Ethanol Plants	3	2.5%	2007
Ethanol Plant Capacity	105 million gal/year	1.9%	2007
Ethanol Use in Gasohol	151,418 thousand gal	5.5%	2003
Electric Power Industry Emissions	Michigan	Share of U.S.	Period
Carbon Dioxide	75,633,485 metric tons	3.1%	2006
Sulfur Dioxide	326,507 metric tons	3.4%	2006
Nitrogen Oxide	113,088 metric tons	3.0%	2006

➔ [See more Environment data for all States](#)

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

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
- [Regional Energy Profiles](#)
reports and maps that explore regional variations in U.S. energy consumption

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