

2013 Wisconsin Energy Statistics

State Energy Office

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Madison, WI 53707-7868



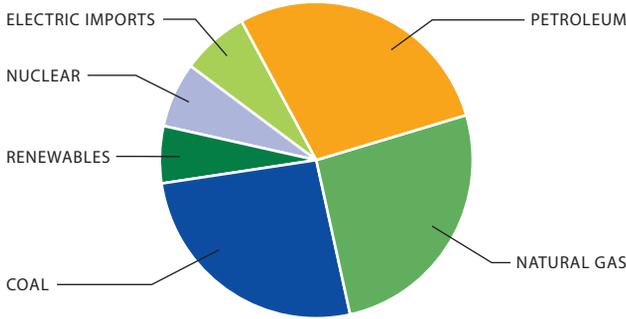
Wisconsin Resource Energy Consumption

Resource energy consumption decreased by 2.7 percent in 2012. Resource energy includes all energy resources used to generate electricity, including the energy content of the coal, petroleum, nuclear and renewable fuels.

TOTAL RESOURCE ENERGY CONSUMPTION: 1,571.4 TRILLION BTU

By Type of Fuel

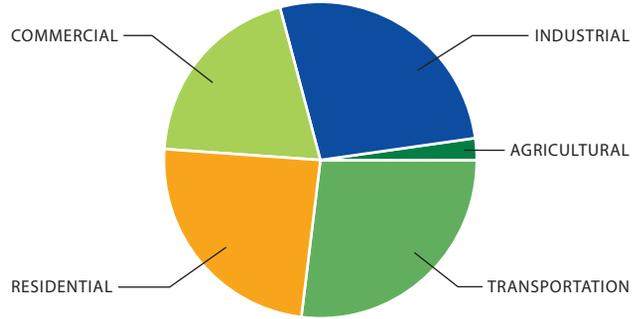
2012 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2012 Trillions of Btu	2012 Percent of Total
Renewables	89.3	5.7%
Nuclear	105.7	6.7%
Electric Imports	106.4	6.8%
Natural Gas	408.6	26.0%
Coal	413.9	26.3%
Petroleum	447.5	28.5%

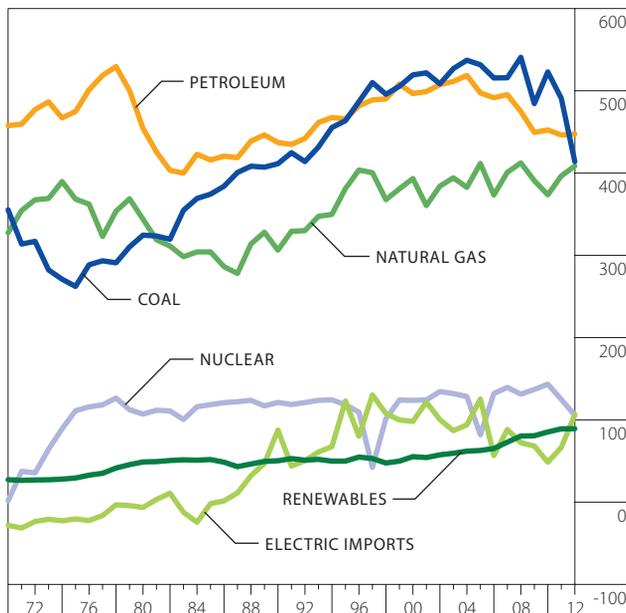
By Economic Sector

2012 TRILLIONS OF BTU AND PERCENT OF TOTAL



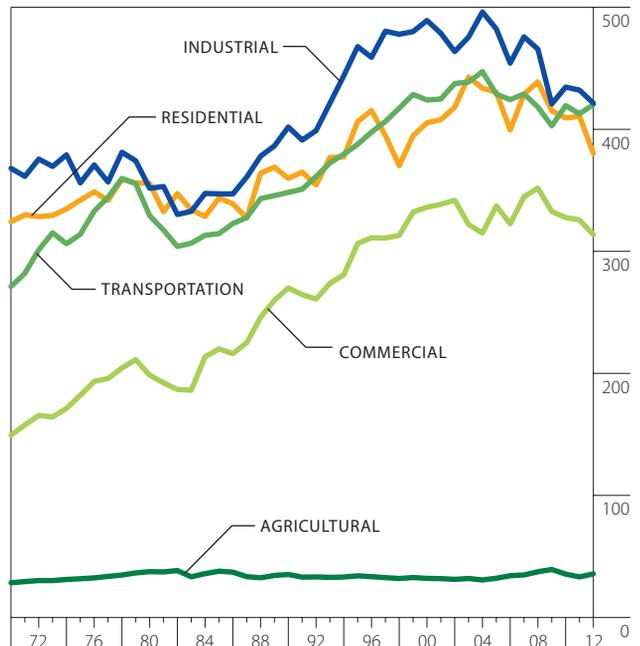
Economic Sector	2012 Trillions of Btu	2012 Percent of Total
Agricultural	35.8	2.3%
Commercial	313.7	20.0%
Residential	380.3	24.2%
Transportation	420.3	26.7%
Industrial	421.4	26.8%

1970-2012 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

1970-2012 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

Wisconsin End-Use Energy Consumption

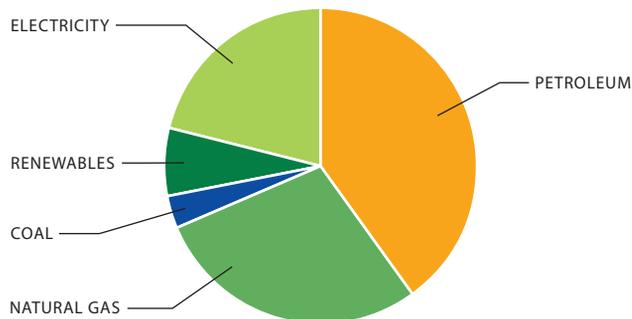
End-use energy decreased by 2.8 percent overall in 2012.

End-use energy is a measure of the energy content of fuels at the point of consumption.

TOTAL END-USE ENERGY CONSUMPTION: 1,114.7 TRILLION BTU

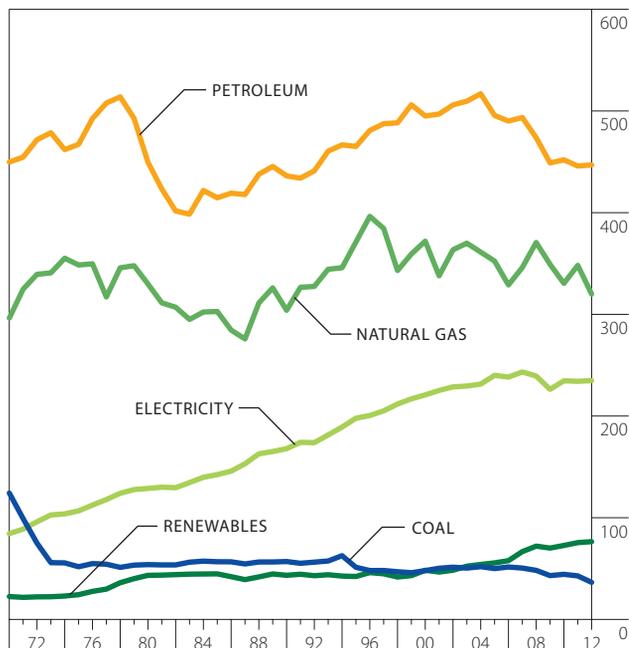
By Type of Fuel

2012 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2012 Trillions of Btu	2012 Percent of Total
Coal (non-utility)	36.5	3.3%
Renewables	76.5	6.9%
Electricity	234.9	21.1%
Natural Gas	320.0	28.7%
Petroleum	446.9	40.1%

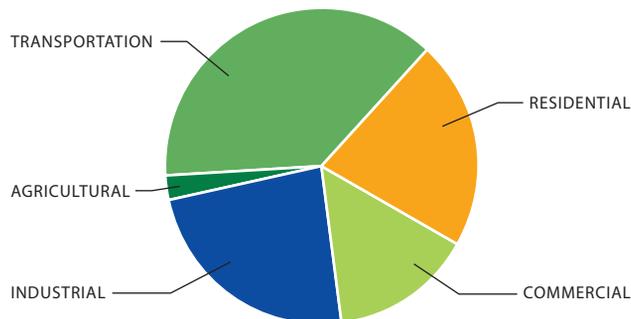
1970-2012 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

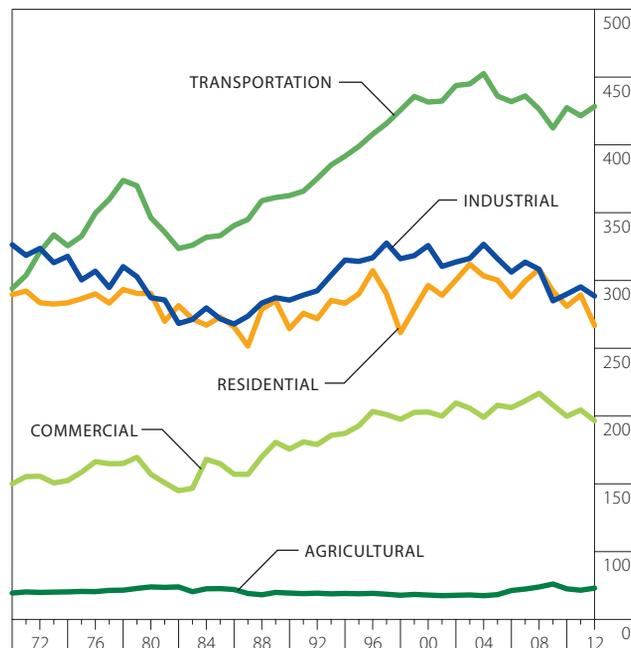
By Economic Sector

2012 TRILLIONS OF BTU AND PERCENT OF TOTAL



Economic Sector	2012 Trillions of Btu	2012 Percent of Total
Agricultural	25.7	2.3%
Commercial	162.9	14.6%
Residential	240.9	21.6%
Industrial	265.0	23.8%
Transportation	420.3	37.7%

1970-2012 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

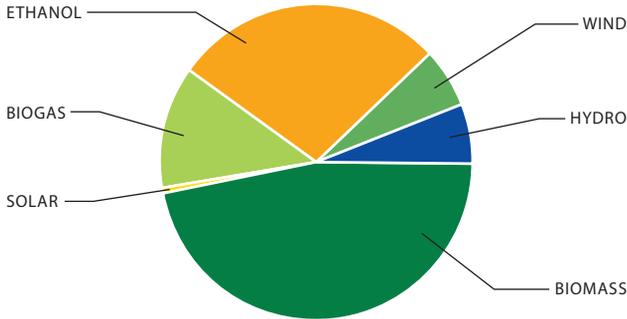
Wisconsin Renewable Energy Production

Overall renewable energy resource use in Wisconsin increased 0.2 percent in 2012.

Renewable energy production includes *all* renewable energy used in Wisconsin for generating electricity and for other applications that displace fossil fuels (e.g., space heating, transportation fuel).

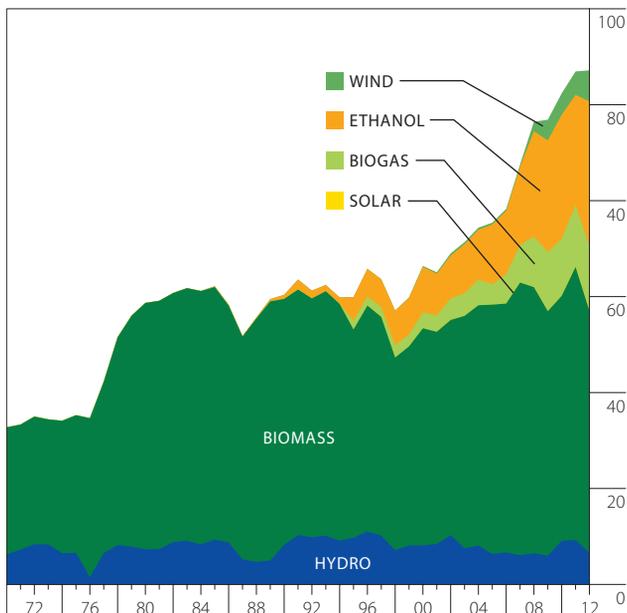
By Type of Fuel

2012 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2012 Trillions of Btu	2012 Percent of Total
Solar	0.1	0.1%
Wind	5.4	6.1%
Hydro	5.5	6.1%
Biogas	11.2	12.5%
Ethanol	25.1	28.1%
Biomass	42.0	47.1%

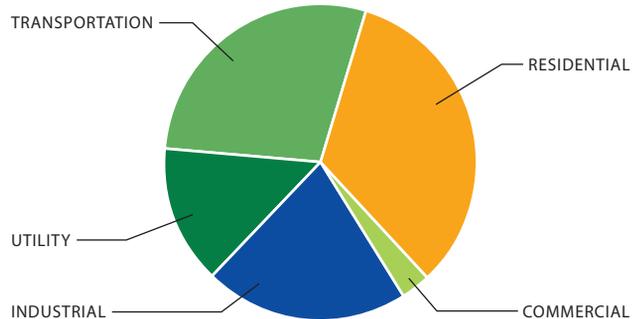
1970-2012 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

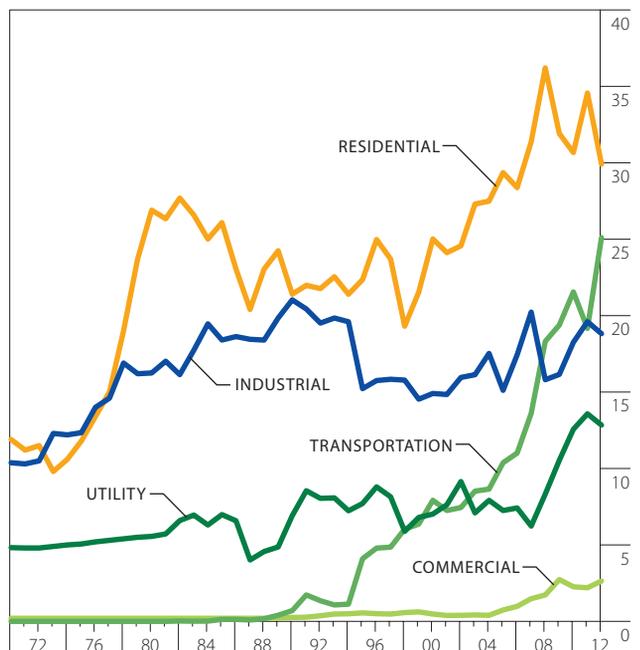
By Economic Sector

2012 TRILLIONS OF BTU AND PERCENT OF TOTAL



Economic Sector	2012 Trillions of Btu	2012 Percent of Total
Commercial	2.6	3.0%
Utility	12.8	14.4%
Industrial	18.8	21.1%
Transportation	25.1	28.1%
Residential	29.9	33.5%

1970-2012 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

Wisconsin Renewable Energy Use

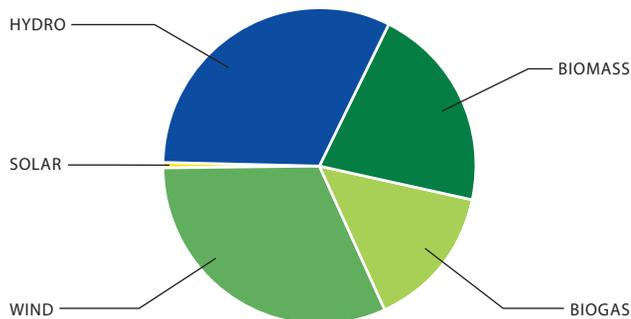
In 2012, Wisconsin's electricity generated from renewable energy sources decreased by 4.8 percent.

Sales of renewable energy comprise 7.3 percent of total electric sales in Wisconsin, a decrease of 5.1 percent over 2011.

Wisconsin is 9th in the nation for biofuels production, thanks to its eight ethanol and four biodiesel production facilities.

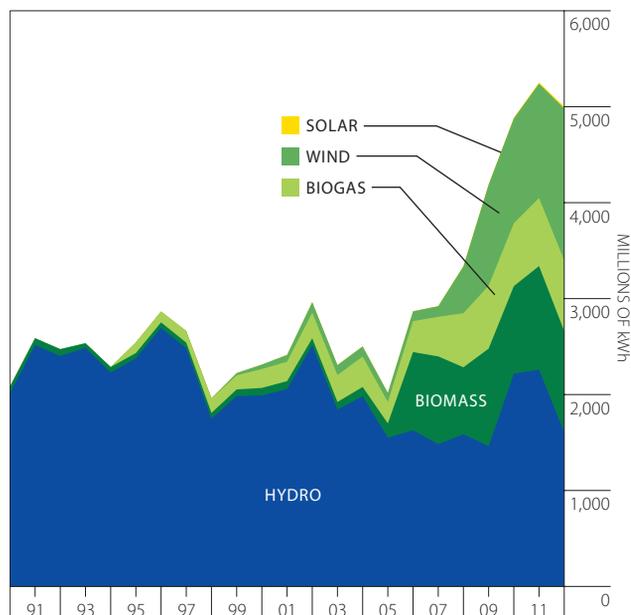
For Electricity Generation

2012 MILLIONS OF kWh AND PERCENT OF TOTAL



Type of Fuel	2012 Millions of kWh	2012 Percent of Total
Solar	19.3	0.4%
Biogas	737.7	14.7%
Biomass	1,053.3	21.1%
Wind	1,583.7	31.7%
Hydro	1,608.2	32.1%

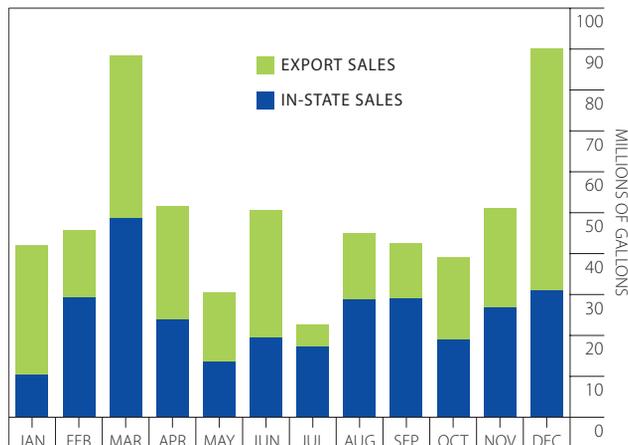
1990-2012 RENEWABLE ENERGY ELECTRICITY GENERATED AND PURCHASED



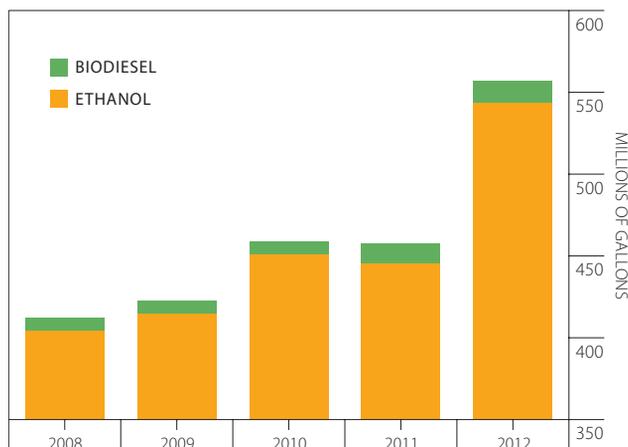
Source: Wisconsin State Energy Office.

For Transportation

2012 ETHANOL SALES BY WISCONSIN PRODUCERS



2008-2012 ETHANOL AND BIODIESEL PRODUCED IN WISCONSIN



Of the 297.5 million gallons of ethanol sold in Wisconsin, 81.2 percent was produced in-state. Wisconsin's biodiesel facilities produced 13.8 million gallons of biodiesel.

Source: Wisconsin State Energy Office.

Wisconsin Residential Energy Use

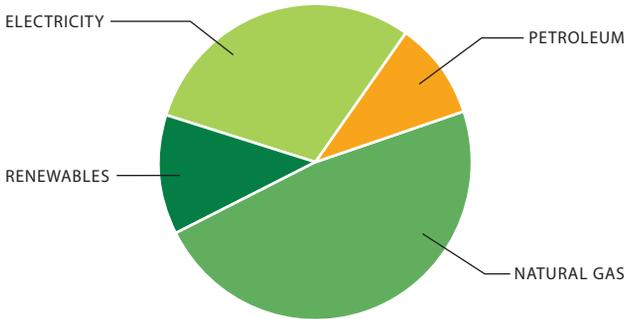
Residential resource energy consumption decreased 7.4 percent while end-use consumption saw a drop of 9.4 percent in 2012.

Natural gas is the dominant fuel used in Wisconsin homes, used primarily for space heating.

Use of natural gas in the residential sector decreased 12.6 percent. Electricity use per customer decreased 0.9 percent.

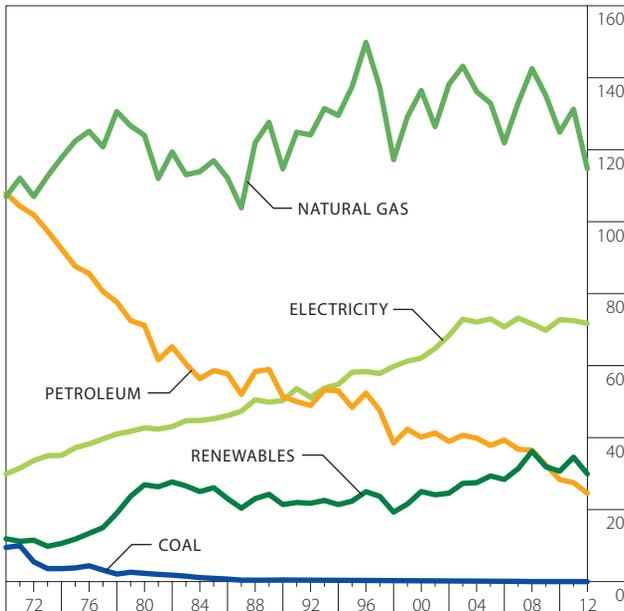
By Type of Fuel

2012 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2012 Trillions of Btu	2012 Percent of Total
Coal (non-utility)	0.0	0.0%
Petroleum	24.6	10.2%
Renewables ^a	29.9	12.4%
Electricity	71.7	29.8%
Natural Gas	114.7	47.6%

1970-2012 TRILLIONS OF BTU

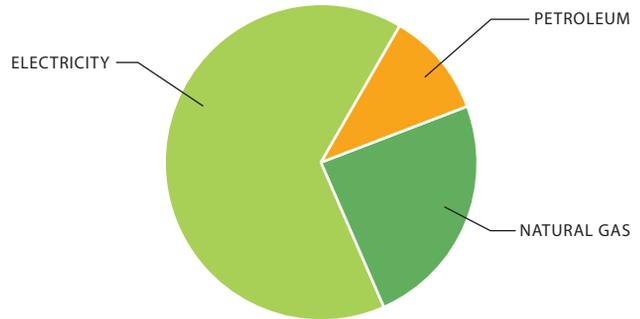


^a Renewables includes wood, solar, wind and biogas.

Source: Wisconsin State Energy Office.

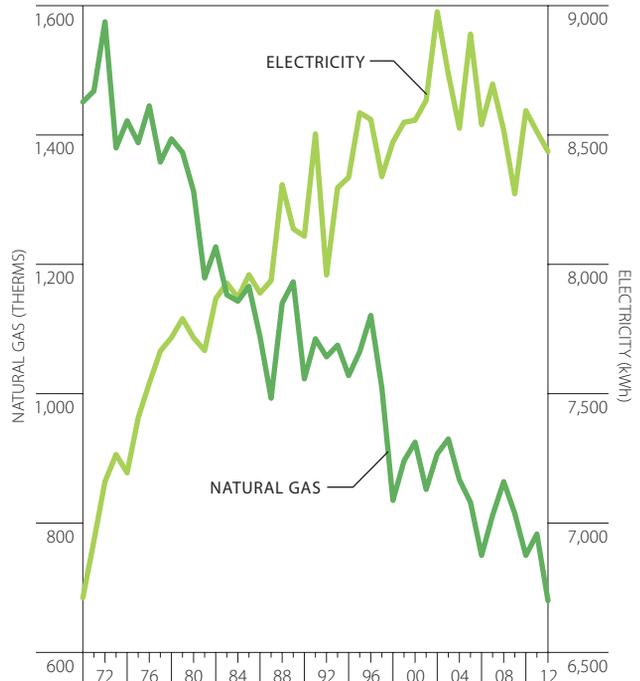
Expenditures and Per Customer Usage

2012 MILLIONS OF DOLLARS AND PERCENT OF TOTAL



Type of Fuel	2012 Millions of Dollars	2012 Percent of Total
Petroleum	464.7	10.9%
Natural Gas	1,042.6	24.4%
Electricity	2,772.5	64.8%

1970-2012 ELECTRICITY AND NATURAL GAS USE PER CUSTOMER



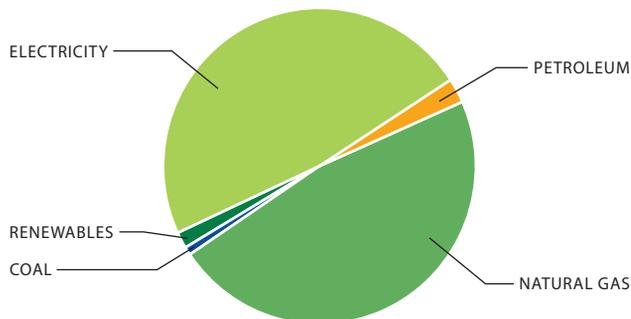
Source: Wisconsin State Energy Office.

Wisconsin Commercial and Industrial Energy Use

Commercial sector end-use energy decreased 5.1 percent, while industrial sector end-use decreased 2.8 percent. In the commercial sector, electricity (47.6 percent) has surpassed natural gas (47.1 percent) as the major energy source, while the industrial sector's primary fuel is natural gas, comprising 47.8 percent of industrial energy consumption.

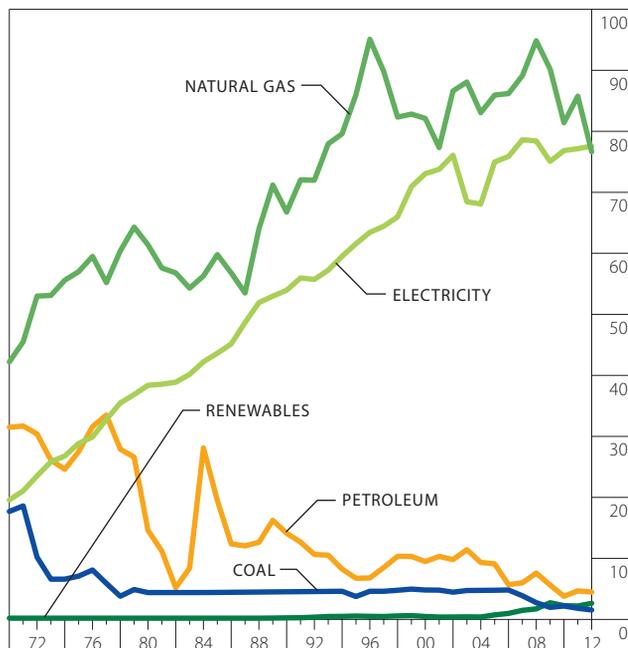
Commercial by Type of Fuel

2012 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2012 Trillions of Btu	2012 Percent of Total
Coal (non-utility)	1.5	0.9%
Renewables	2.6	1.6%
Petroleum	4.5	2.8%
Natural Gas	76.6	47.1%
Electricity	77.6	47.6%

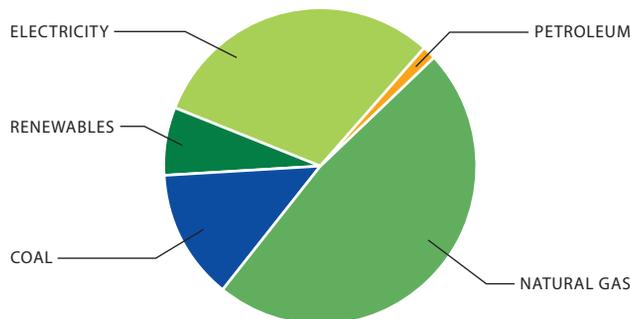
1970-2012 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

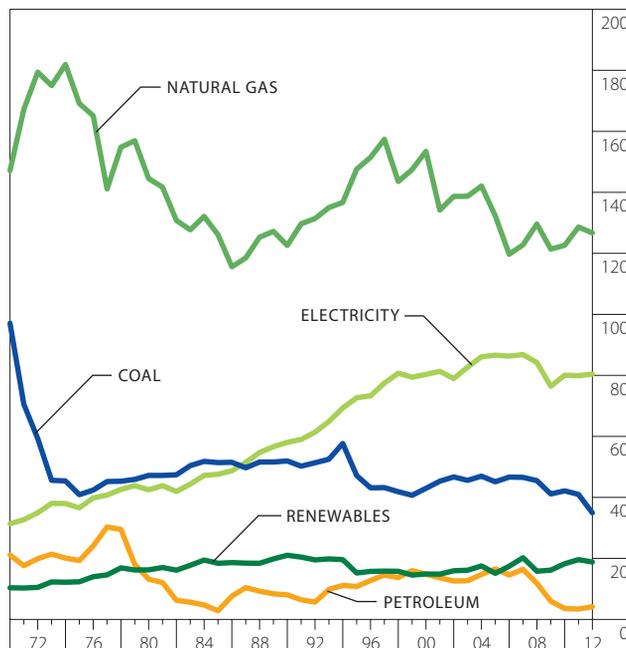
Industrial by Type of Fuel

2012 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2012 Trillions of Btu	2012 Percent of Total
Petroleum	4.2	1.6%
Renewables	18.8	7.1%
Coal (non-utility)	34.9	13.2%
Electricity	80.4	30.3%
Natural Gas	126.7	47.8%

1970-2012 TRILLIONS OF BTU



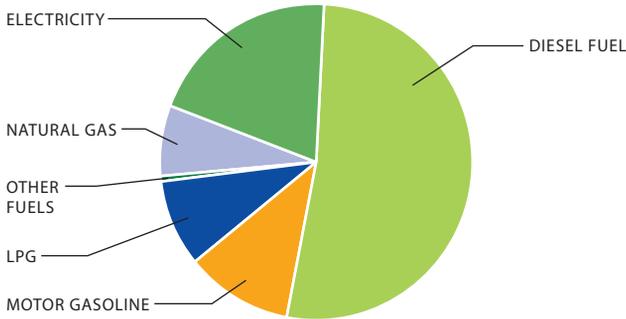
Source: Wisconsin State Energy Office.

Wisconsin Agricultural and Transportation Energy Use

Agricultural end-use petroleum consumption increased 11.0 percent in 2012, while overall end use increased by 7.1 percent. Electricity use increased by 12.5 percent. Using 2012 dollars, the real, average statewide price of gasoline increased by \$0.032 a gallon (0.9 percent), to \$3.624 a gallon.

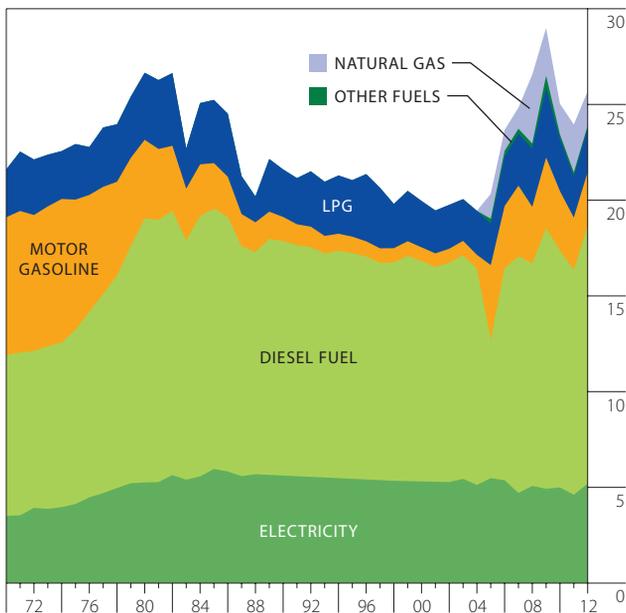
Agricultural by Type of Fuel

2012 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2012 Trillions of Btu	2012 Percent of Total
Other Fuels	0.1	0.5%
Natural Gas	1.8	7.0%
LPG	2.3	8.9%
Motor Gasoline	2.8	10.9%
Electricity	5.2	20.2%
Diesel Fuel	13.5	52.5%

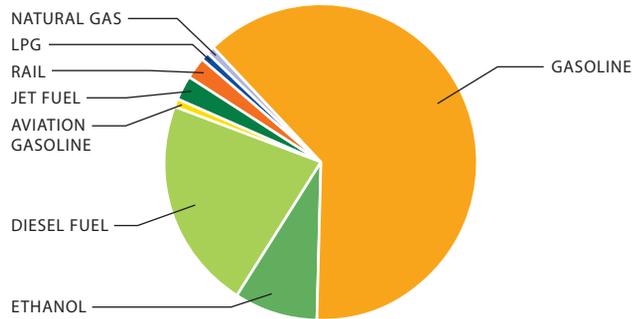
1970-2012 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

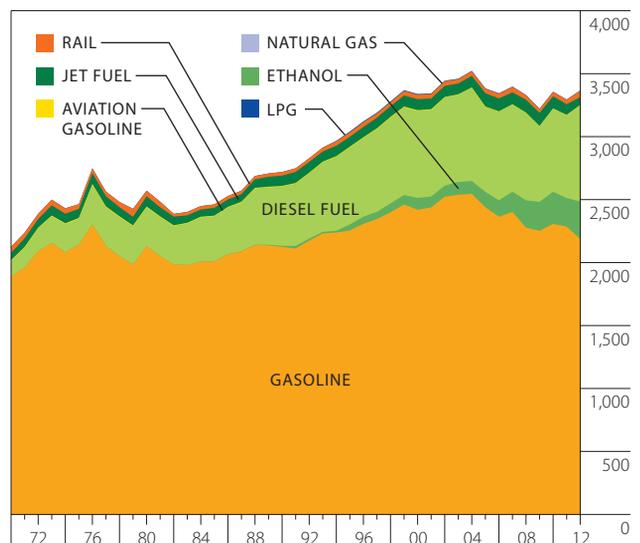
Transportation by Type of Fuel

2012 MILLIONS OF GALLONS AND PERCENT OF TOTAL



Type of Fuel	2012 Millions of Gallons	2012 Percent of Total
Natural Gas	1.5	0.045%
LPG	1.6	0.048%
Aviation Gasoline	3.2	0.1%
Rail	50.2	1.5%
Jet Fuel	62.8	1.9%
Ethanol	297.5	8.8%
Diesel Fuel	764.1	22.7%
Gasoline	2,186.9	64.9%

1970-2012 MILLIONS OF GALLONS



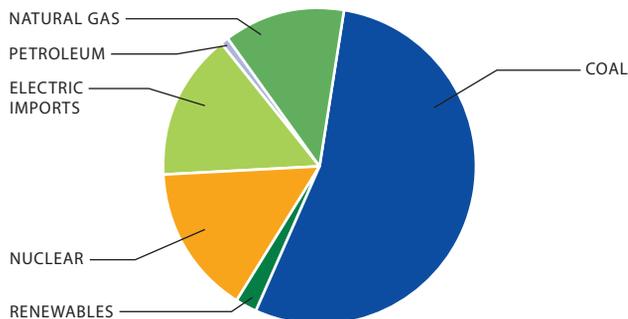
Source: Wisconsin State Energy Office.

Wisconsin Energy Use for Electricity Generation and Electric Utility Sales

Wisconsin's energy use for electric generation decreased by 1.5 percent in 2012, while total electricity sales increased 0.3 percent despite slight decreases in electricity sales in the residential sector. Sales to commercial, industrial and agricultural customers increased.

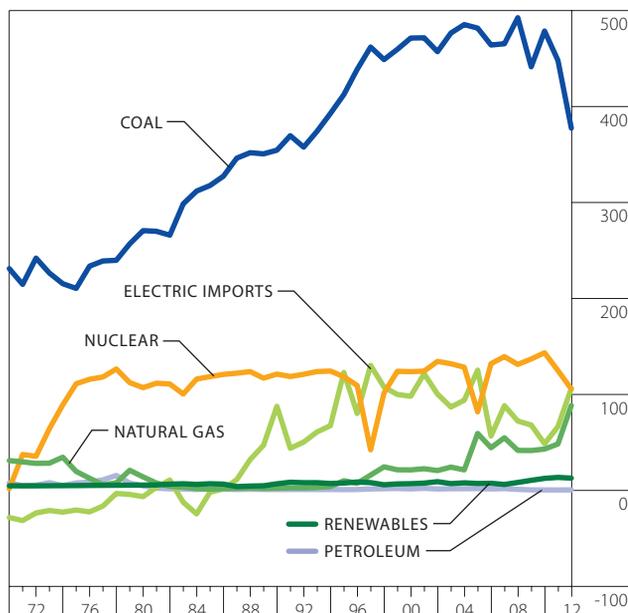
Energy Use for Electricity Generation by Type of Fuel

2012 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2012 Trillions of Btu	2012 Percent of Total
Petroleum	0.6	0.1%
Renewables	12.8	1.9%
Natural Gas	88.6	12.8%
Nuclear	105.7	15.3%
Electric Imports	106.4	15.4%
Coal	377.5	54.6%

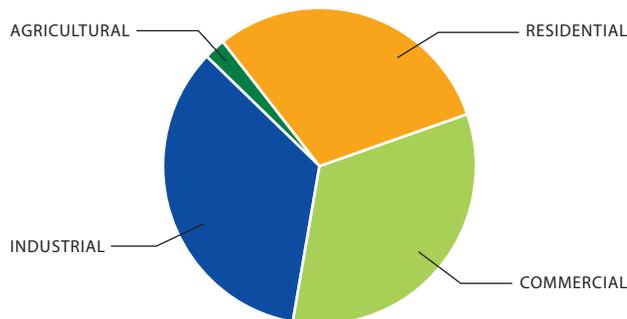
1970-2012 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

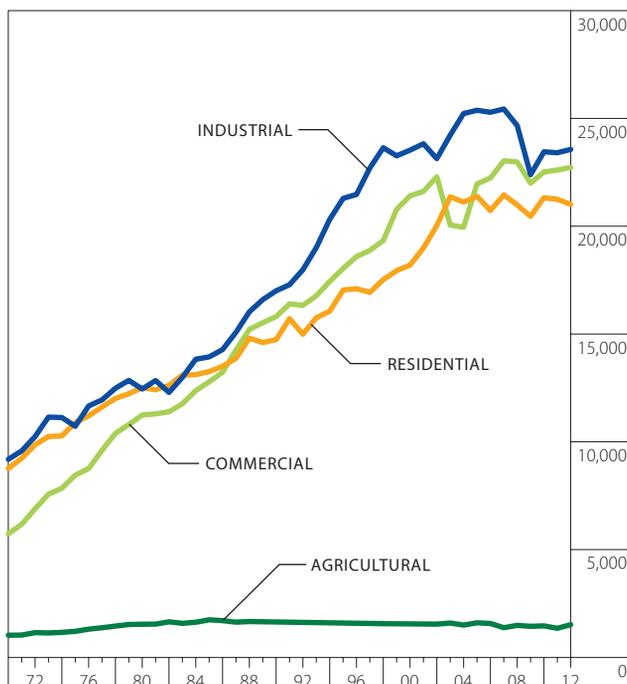
Electric Utility Sales by Economic Sector

2012 MILLIONS OF kWh AND PERCENT OF TOTAL



Economic Sector	2012 Millions of kWh	2012 Percent of Total
Agricultural	1,520	2.2%
Residential	21,012	30.5%
Commercial	22,727	33.0%
Industrial	23,561	34.2%

1970-2012 MILLIONS OF kWh



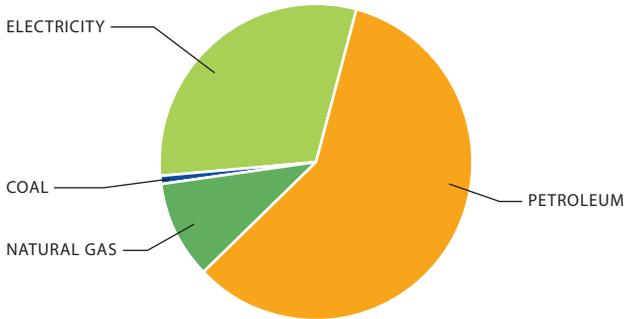
Source: Wisconsin State Energy Office.

Wisconsin End-Use Energy Expenditures

In 2012, Wisconsin's overall energy bill increased by \$74.7 million (0.3 percent) from 2011. Expenditures decreased for all sectors, except agriculture and transportation. Expenditures for electricity and petroleum saw small increases, while expenditures on natural gas and coal declined. Since 2000, Wisconsin's total energy expenditures increased by \$11.2 billion (93.4 percent increase).

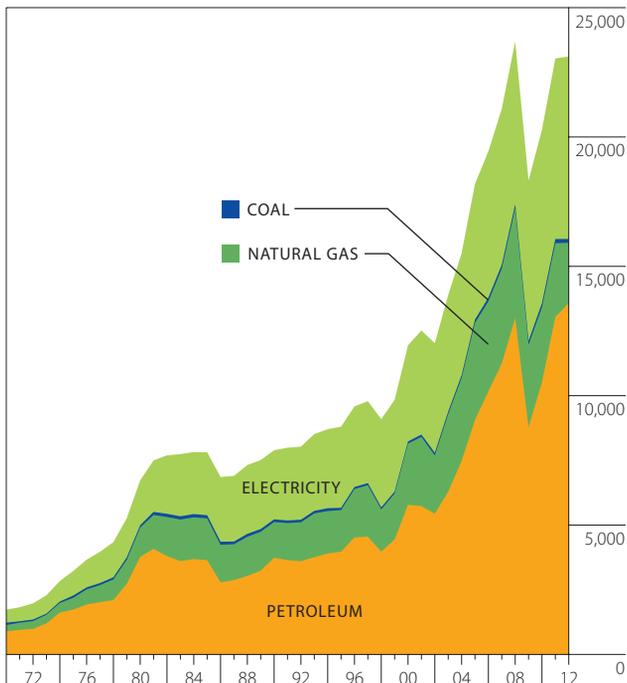
By Type of Fuel

2012 MILLIONS OF DOLLARS AND PERCENT OF TOTAL



Type of Fuel	2012 Millions of Dollars	2012 Percent of Total
Coal (non-utility)	146.6	0.6%
Natural Gas	2,332.1	10.1%
Electricity	7,052.6	30.5%
Petroleum	13,579.8	58.8%

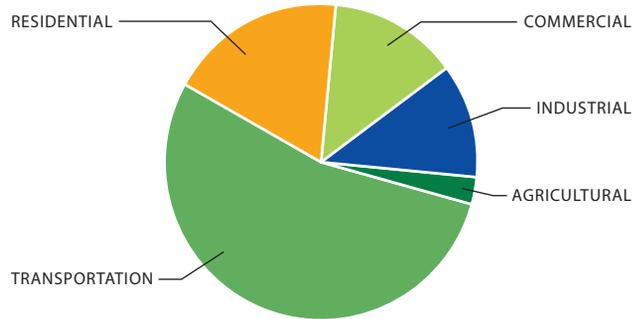
1970-2012 MILLIONS OF DOLLARS



Source: Wisconsin State Energy Office.

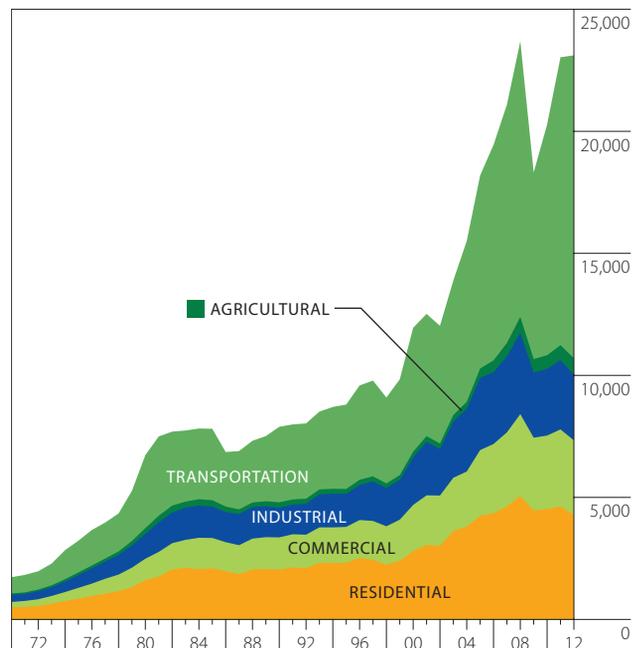
By Economic Sector

2012 MILLIONS OF DOLLARS AND PERCENT OF TOTAL



Economic Sector	2012 Millions of Dollars	2012 Percent of Total
Agricultural	681.4	2.9%
Industrial	2,687.2	11.6%
Commercial	3,056.6	13.2%
Residential	4,279.7	18.5%
Transportation	12,406.1	53.7%

1970-2012 MILLIONS OF DOLLARS



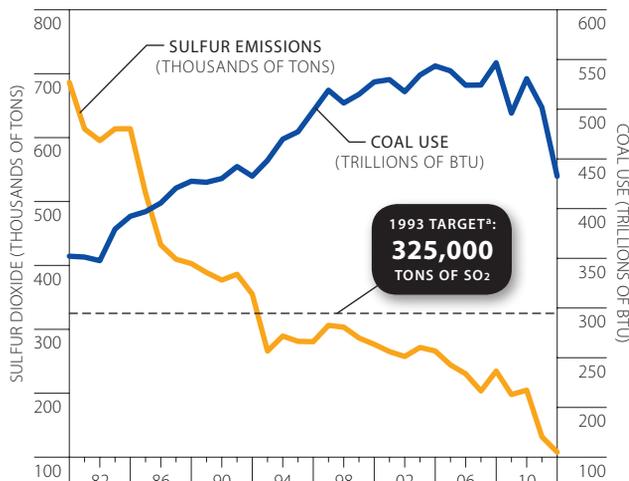
Source: Wisconsin State Energy Office.

Wisconsin Emissions

Future decreases in total emissions will depend on growth in coal-fired generation, old plant retirement, the effectiveness of future energy efficiency efforts, increased use of natural gas and renewable energy, and the disposition of proposed U.S. EPA rules. SO₂ and NO_x emissions are pollutants and are measured for air quality monitoring. CO₂ is a greenhouse gas which contributes to climate change.

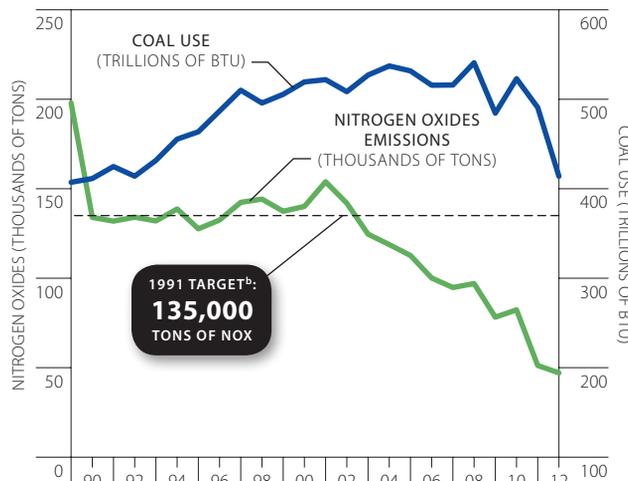
Sulfur Dioxide Emissions and Coal Use

1980-2012



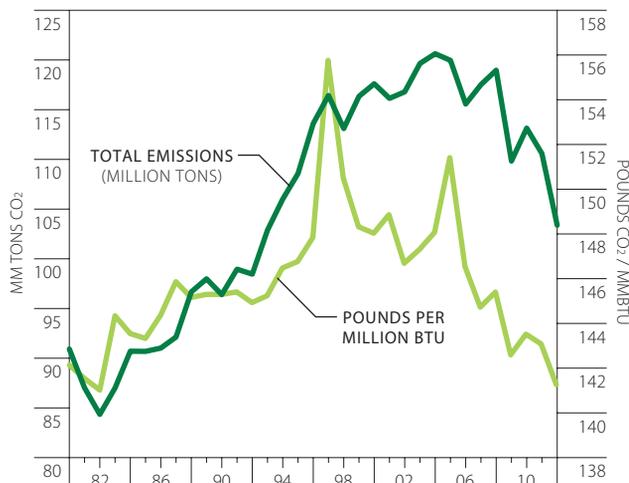
Nitrogen Oxides Emissions and Coal Use

1989-2012



Carbon Dioxide Emissions from Energy Use

1980-2012^c



Utility Sulfur Dioxide Emissions

decreased 33.0 percent from 2011 to 2012.

Wisconsin CO₂ Emissions from Energy

decreased 6.5 percent in 2012.

Since 1990 total CO₂ emissions have increased 7.4 percent.

Utility Nitrogen Oxides Emissions

decreased 24.4 percent from 2011 to 2012.

^a 1993 target established in Wisconsin Statutes, 285.45(2)(a). <http://www.legis.state.wi.us/statutes/Stat0285.pdf>. Target is for all major utilities and large sources.

^b 1991 target established in Wisconsin Statutes, 285.47(2). <http://www.legis.state.wi.us/statutes/Stat0285.pdf>. Target is for all major utilities.

^c Does not include electric imports.

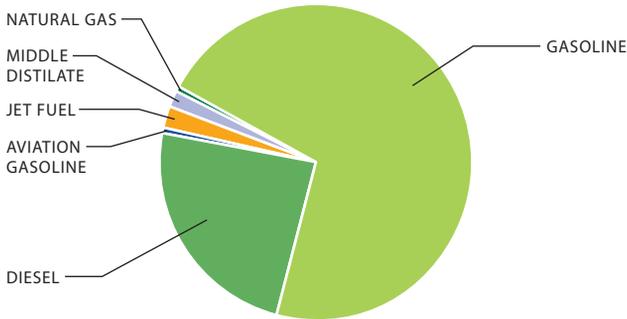
Source: Wisconsin State Energy Office.

Transportation and Heating Fuels

Wisconsinites spent \$12.4 billion on transportation in 2012, an increase of 5.1 percent, or \$606.6 million, over 2011. The increase in expenditures is due primarily to an increase in prices. Of the \$4.3 billion of residential energy spending, about \$1.5 billion (35 percent) pays for natural gas and petroleum for space heating.

Transportation Expenditures

2012 MILLIONS OF DOLLARS AND PERCENT OF TOTAL

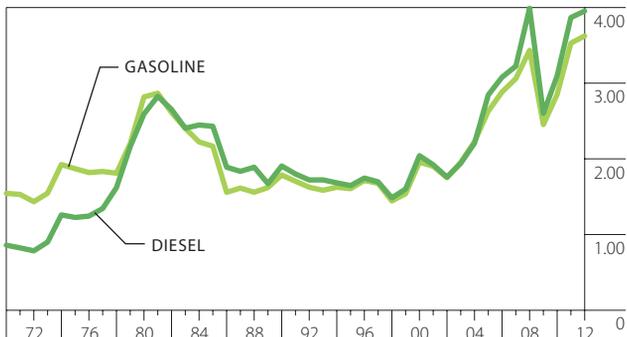


Type of Fuel	2012 Millions of Dollars	2012 Percent of Total
Natural Gas	2.8	0.02%
Aviation Gasoline	13.3	0.1%
Middle Distillate	172.1	1.4%
Jet Fuel	202.0	1.6%
Diesel	3,012.4	24.3%
Gasoline ^a	9,003.5	72.6%

Transportation Fuel Prices

Type of Fuel	2011 Price Per Gallon ^{b,c}	2012 Price Per Gallon ^{b,c}
Gasoline	\$3.529	\$3.624
Diesel	\$3.867	\$3.953

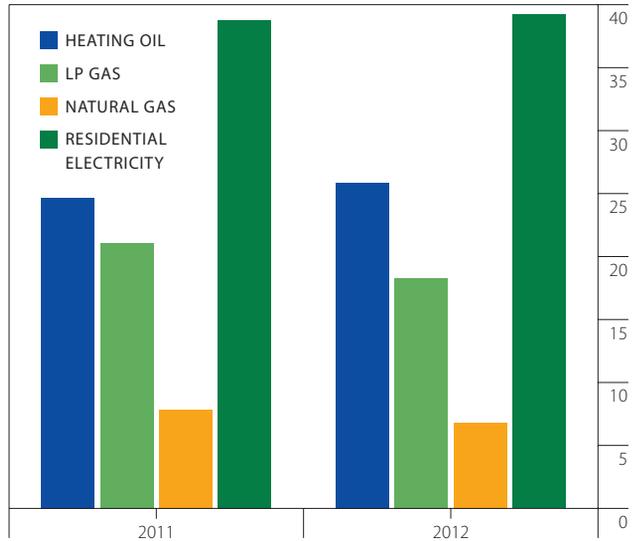
1970-2012 DOLLARS PER GALLON^{b,c}



Heating Fuels Prices

Fuel	% Change	2011 Price ^d	2012 Price ^d
Heating Oil	↑ 4.6%	\$3.42 per gallon	\$3.58 per gallon
LP Gas	↓ 17.0%	\$2.01 per gallon	\$1.67 per gallon
Natural Gas	↓ 13.0%	\$7.85 per MMBtu	\$6.83 per MMBtu
Residential Electricity	↑ 1.0%	\$0.132 per kWh	\$0.134 per kWh

2011-2012 DOLLARS PER MILLION BTU



Prices for residential fuels are updated once a week in the winter (October to March) and once a month in the summer (April to September) and are posted on the SEO webpage. Visit www.stateenergyoffice.wi.gov and click on Statistics/Tables and Heating Fuels.

^a Includes ethanol.
^b From the American Automobile Association, Daily Fuel Gauge Report. <http://www.fuelgaugereport.aaa.com/>
^c Prices are in 2012 dollars.
^d All prices are statewide averages for the calendar year. Heating fuel and LP rates are gathered from fuel retailers across the state as part of an SEO telephone survey funded by the U.S. Department of Energy. Electricity price averages are compiled from rates reported to the Public Service Commission of Wisconsin. Natural gas rates are compiled from residential rates reported by Wisconsin's natural gas utilities.

Source: Wisconsin State Energy Office.