

2011 and 2012 Wisconsin Energy Statistics

State Energy Office

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PO Box 7868

Madison, WI 53707-7868



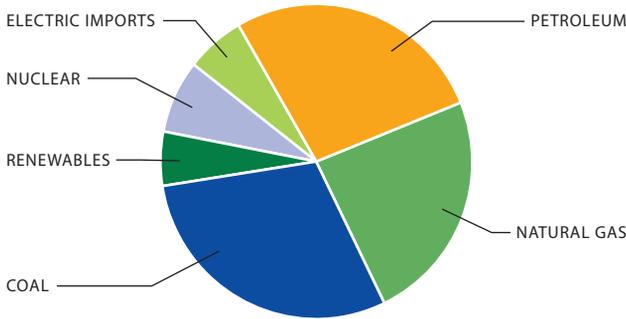
Wisconsin Resource Energy Consumption

Resource energy consumption decreased by 0.8 percent in 2011. 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: 1,647.6 TRILLION BTU

By Type of Fuel

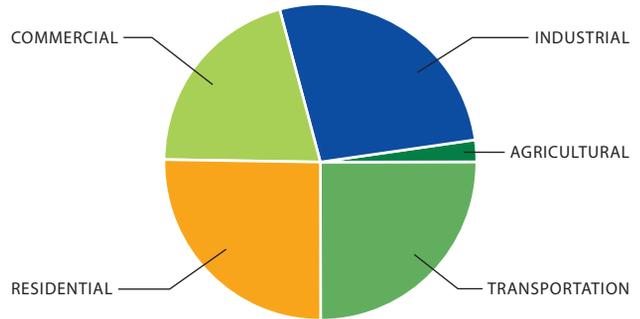
2011 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2011 Trillions of Btu	2011 Percent of Total
Renewables	88.7	5.4%
Electric Imports	98.1	6.0%
Nuclear	124.8	7.6%
Natural Gas	395.8	24.0%
Petroleum	448.6	27.2%
Coal	491.5	29.8%

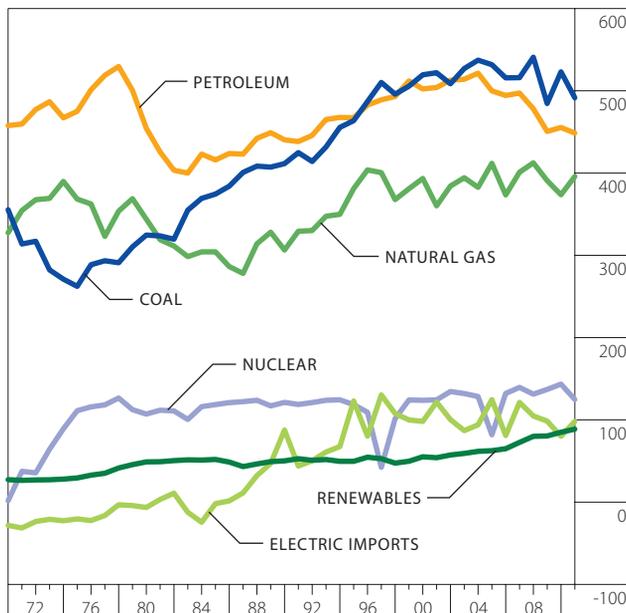
By Economic Sector

2011 TRILLIONS OF BTU AND PERCENT OF TOTAL



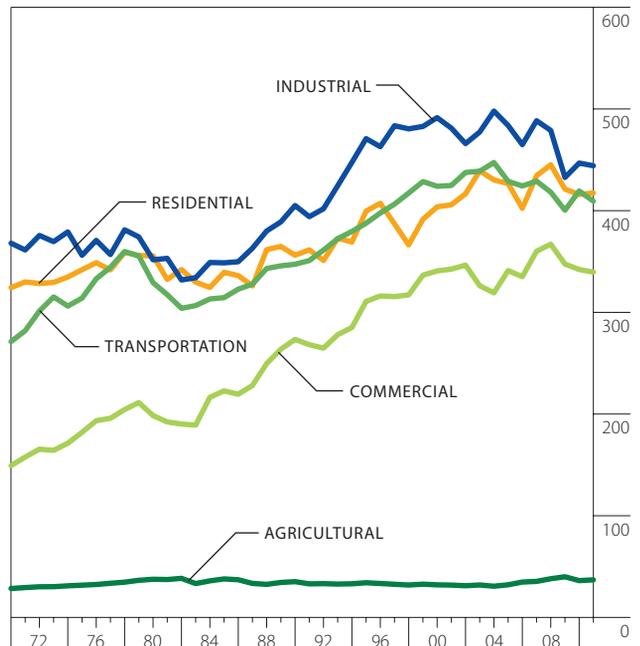
Economic Sector	2011 Trillions of Btu	2011 Percent of Total
Agricultural	37.0	2.2%
Commercial	339.6	20.6%
Transportation	409.4	24.8%
Residential	417.4	25.3%
Industrial	444.2	27.0%

1970-2011 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

1970-2011 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

Wisconsin End-Use Energy Consumption

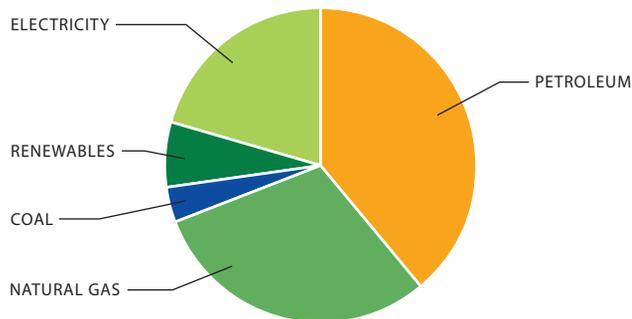
End-use energy increased by 1.0 percent overall in 2011.

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

TOTAL END-USE ENERGY CONSUMPTION: 1,148.7 TRILLION BTU

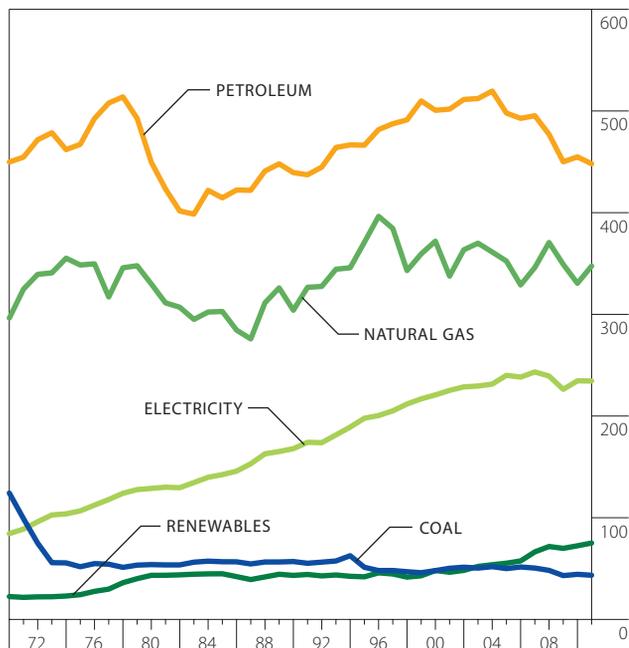
By Type of Fuel

2011 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2011 Trillions of Btu	2011 Percent of Total
Coal (non-utility)	43.5	3.8%
Renewables	75.1	6.5%
Electricity	234.5	20.4%
Natural Gas	347.5	30.3%
Petroleum	448.1	39.0%

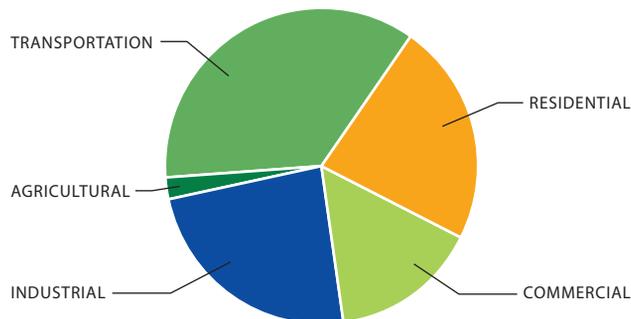
1970-2011 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

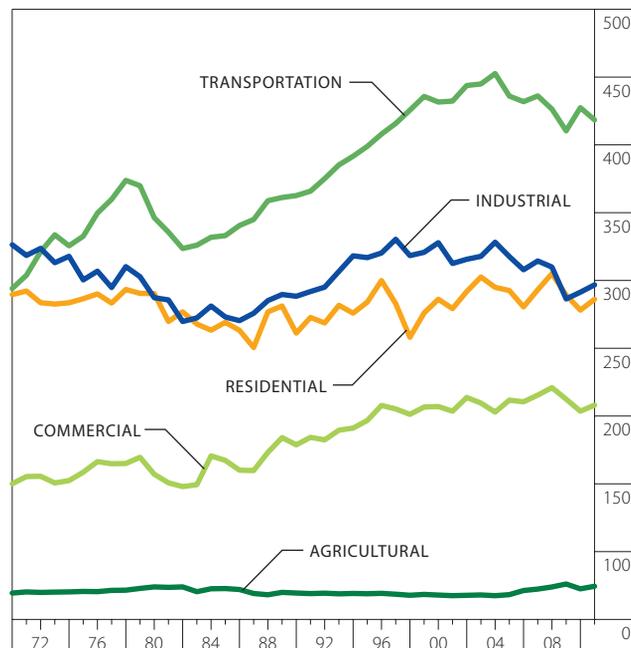
By Economic Sector

2011 TRILLIONS OF BTU AND PERCENT OF TOTAL



Economic Sector	2011 Trillions of Btu	2011 Percent of Total
Agricultural	27.2	2.4%
Commercial	175.6	15.3%
Residential	262.3	22.8%
Industrial	274.2	23.9%
Transportation	409.4	35.6%

1970-2011 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

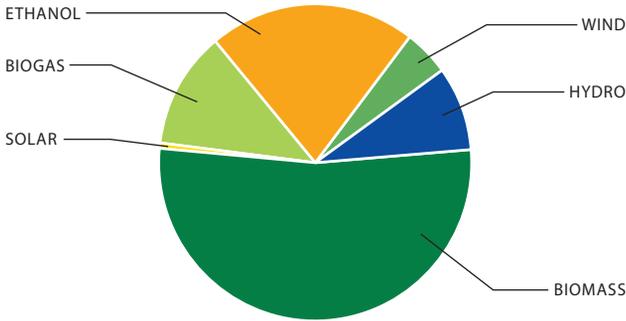
Wisconsin Renewable Energy Production

Overall renewable energy use in Wisconsin increased 4.4 percent in 2011.

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

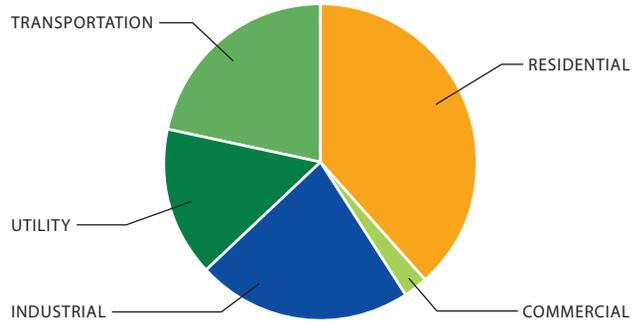
2011 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2011 Trillions of Btu	2011 Percent of Total
Solar	0.1	0.1%
Wind	4.1	4.6%
Hydro	7.7	8.7%
Biogas	10.6	12.0%
Ethanol	19.2	21.6%
Biomass	47.1	53.0%

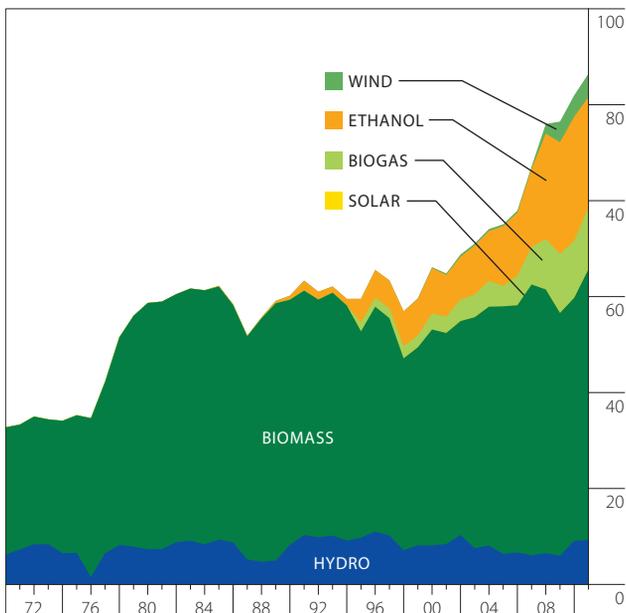
By Economic Sector

2011 TRILLIONS OF BTU AND PERCENT OF TOTAL



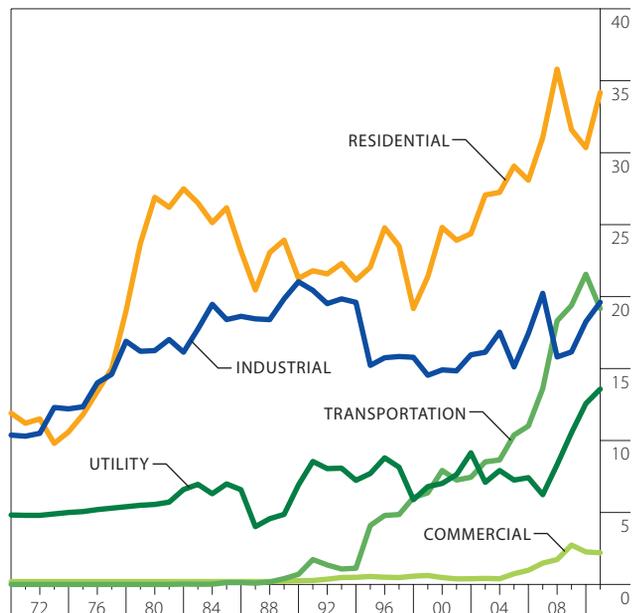
Economic Sector	2011 Trillions of Btu	2011 Percent of Total
Commercial	2.2	2.5%
Utility	13.6	15.3%
Transportation	19.2	21.6%
Industrial	19.6	22.1%
Residential	34.2	38.5%

1970-2011 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

1970-2011 TRILLIONS OF BTU

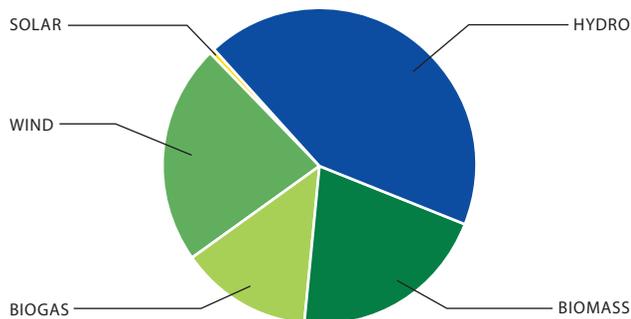


Wisconsin Renewable Energy Use

In 2011, Wisconsin's electricity generated from renewable energy sources increased by 7.5 percent. Sales of renewable energy comprise 7.7 percent of total electric sales in Wisconsin, an increase of 7.6 percent over 2010. Wisconsin is 9th in the nation for biofuels production, thanks to its eight ethanol and four biodiesel production facilities.

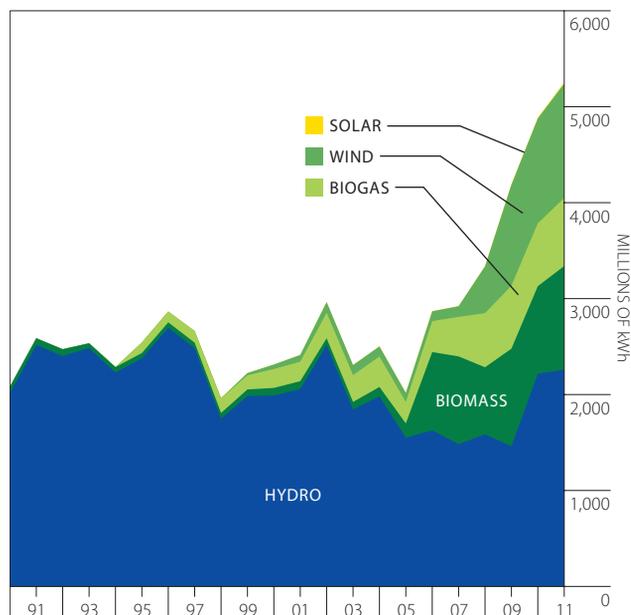
For Electricity Generation

2011 MILLIONS OF kWh AND PERCENT OF TOTAL



Type of Fuel	2011 Millions of kWh	2011 Percent of Total
Solar	13.2	0.3%
Biogas	710.0	13.5%
Biomass	1,080.3	20.6%
Wind	1,190.5	22.7%
Hydro	2,258.9	43.0%

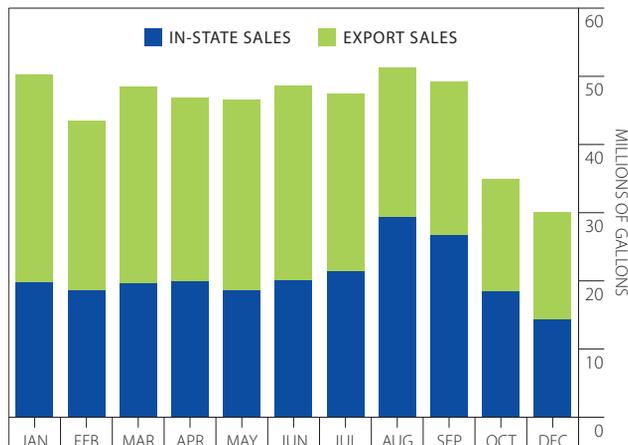
1990-2011 RENEWABLE ENERGY ELECTRICITY GENERATED AND PURCHASED



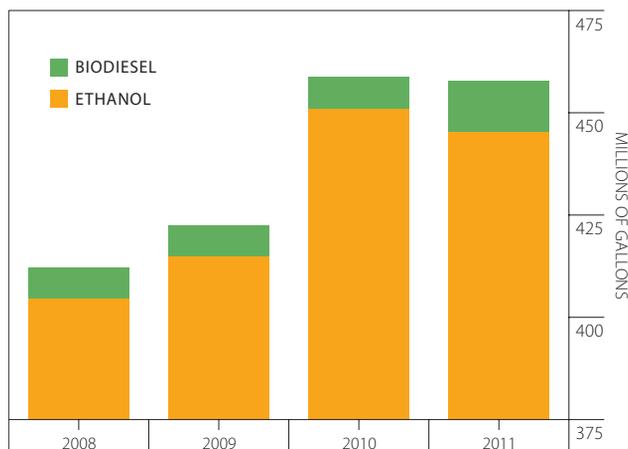
Source: Wisconsin State Energy Office.

For Transportation

2011 ETHANOL SALES BY WISCONSIN PRODUCERS^a



2008-2011 ETHANOL AND BIODIESEL PRODUCED IN WISCONSIN



Of the 227.0 million gallons of ethanol sold in Wisconsin, 77.2 percent was produced in-state. Wisconsin's biodiesel facilities produced 12.3 million gallons of biodiesel.

^a November is missing from this graph because in 2011, the Wisconsin Department of Revenue shifted its data collection method and reported no ethanol for that month.

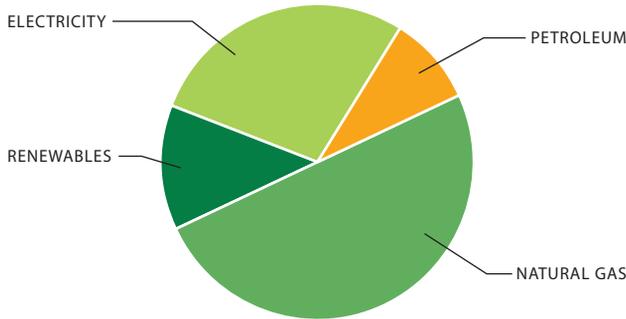
Source: Wisconsin State Energy Office.

Wisconsin Residential Energy Use

Residential resource energy consumption increased 0.4 percent while end-use consumption increased 3.5 percent. Natural gas comprises 49.9 percent of all energy use in the residential sector, most of which is used for space heating. A cold winter in 2011 led to a 4.4 percent increase in per customer natural gas use. Electricity use per customer decreased 0.4 percent.

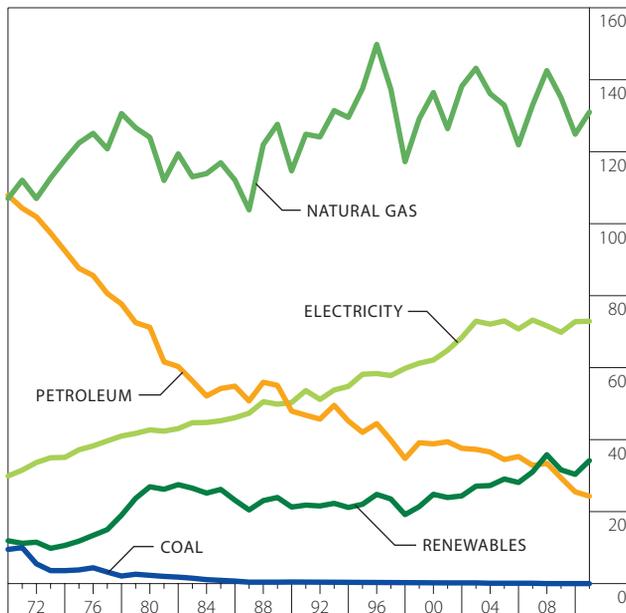
By Type of Fuel

2011 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2011 Trillions of Btu	2011 Percent of Total
Coal (non-utility)	0.0	0.0%
Petroleum	24.3	9.3%
Renewables ^a	34.2	13.0%
Electricity	72.9	27.8%
Natural Gas	131.0	49.9%

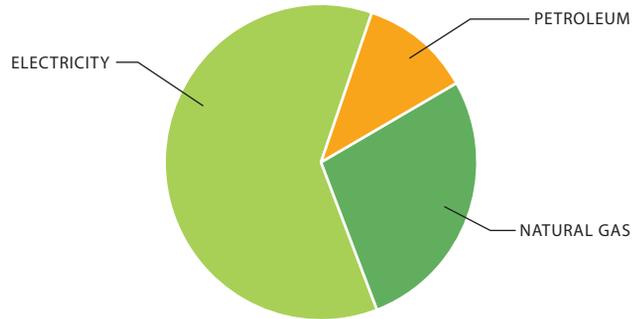
1970-2011 TRILLIONS OF BTU



^a Renewables includes wood, solar, wind and biogas.
Source: Wisconsin State Energy Office.

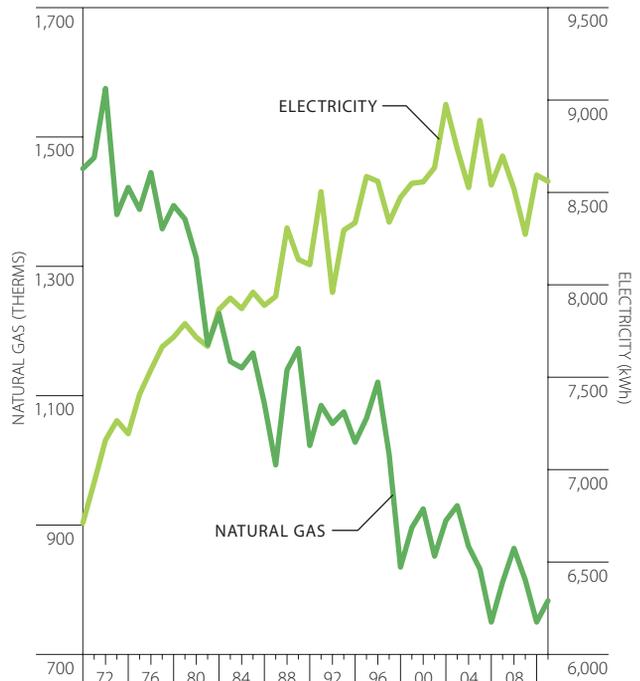
Expenditures and Per Customer Usage

2011 MILLIONS OF DOLLARS AND PERCENT OF TOTAL



Type of Fuel	2011 Millions of Dollars	2011 Percent of Total
Petroleum	531.5	11.6%
Natural Gas	1,264.1	27.6%
Electricity	2,789.1	60.8%

1970-2011 ELECTRICITY AND NATURAL GAS USE PER CUSTOMER



Source: Wisconsin State Energy Office.

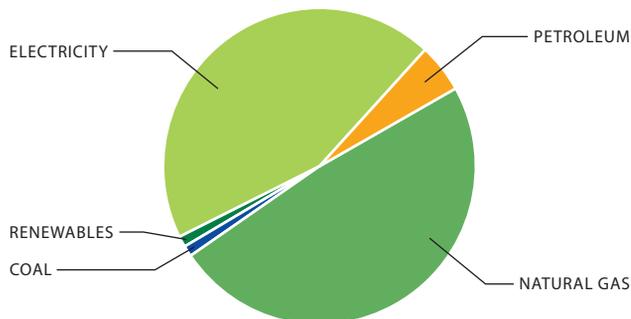
Wisconsin Commercial and Industrial Energy Use

Commercial sector end-use energy increased 2.9 percent, while industrial sector end-use increased 2.2 percent.

In the commercial and industrial sectors natural gas remains the major energy source, providing 48.8 percent of commercial sector energy and 46.8 percent in the industrial sector.

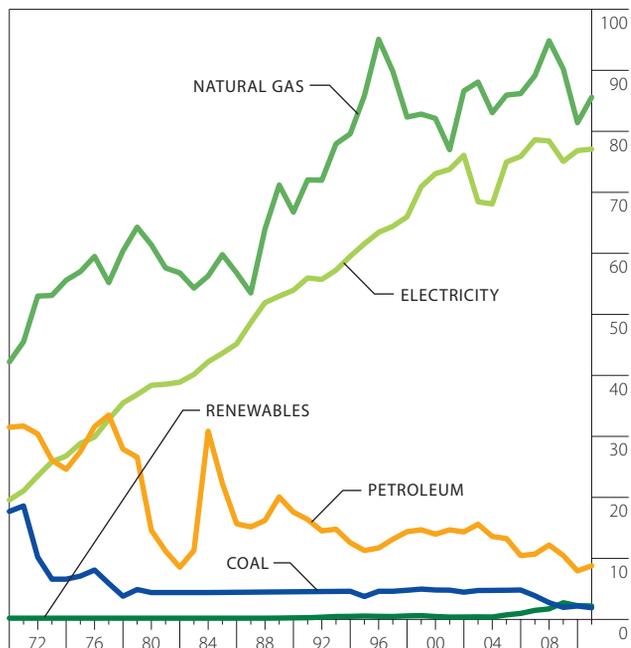
Commercial by Type of Fuel

2011 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2011 Trillions of Btu	2011 Percent of Total
Coal (non-utility)	1.9	1.1%
Renewables	2.2	1.3%
Petroleum	8.8	5.0%
Electricity	77.1	43.9%
Natural Gas	85.6	48.8%

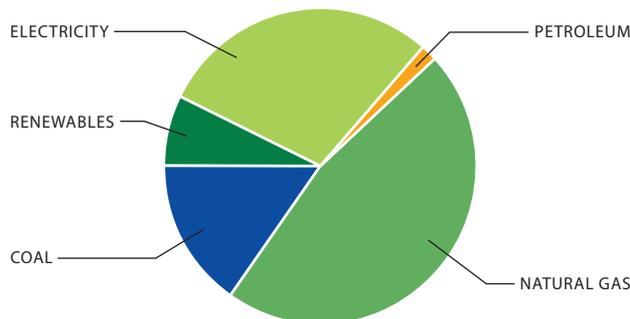
1970-2011 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

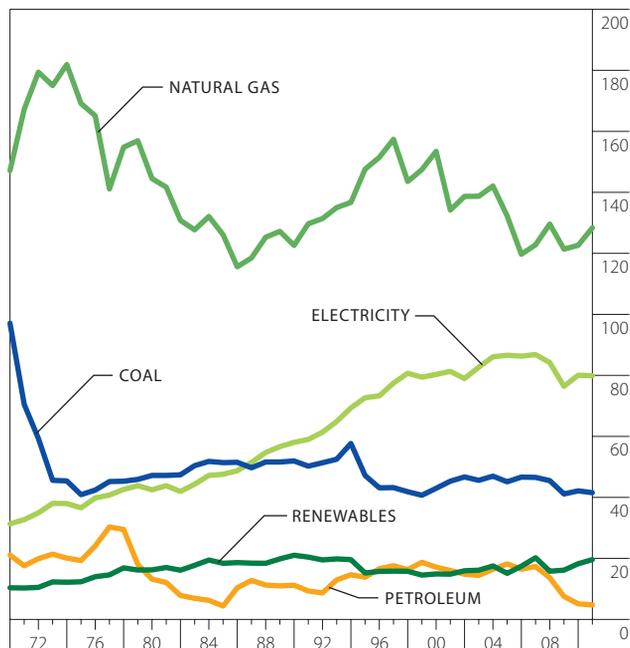
Industrial by Type of Fuel

2011 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2011 Trillions of Btu	2011 Percent of Total
Petroleum	4.8	1.7%
Renewables	19.6	7.2%
Coal (non-utility)	41.6	15.2%
Electricity	79.9	29.1%
Natural Gas	128.4	46.8%

1970-2011 TRILLIONS OF BTU



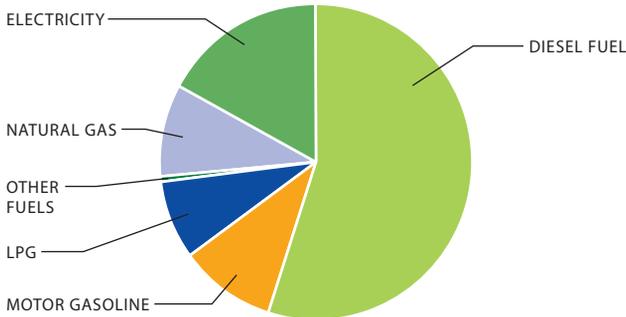
Source: Wisconsin State Energy Office.

Wisconsin Agricultural and Transportation Energy Use

Agricultural end-use petroleum consumption increased 8.8 percent in 2011, while electricity use decreased by 7.6 percent. Using 2011 dollars, the real, average statewide price of gasoline increased by \$0.678 a gallon (23.8 percent), to \$3.529 a gallon.

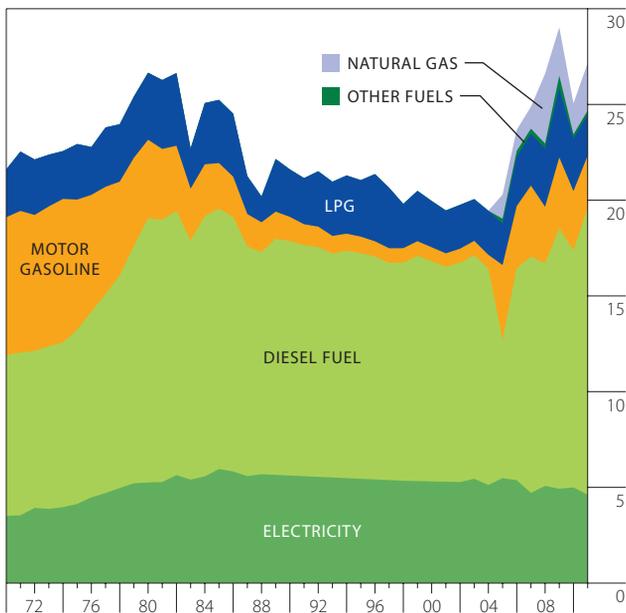
Agricultural by Type of Fuel

2011 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2011 Trillions of Btu	2011 Percent of Total
Other Fuels	0.2	0.7%
LPG	2.2	7.9%
Natural Gas	2.5	9.2%
Motor Gasoline	2.7	10.1%
Electricity	4.6	17.0%
Diesel Fuel	15.0	55.1%

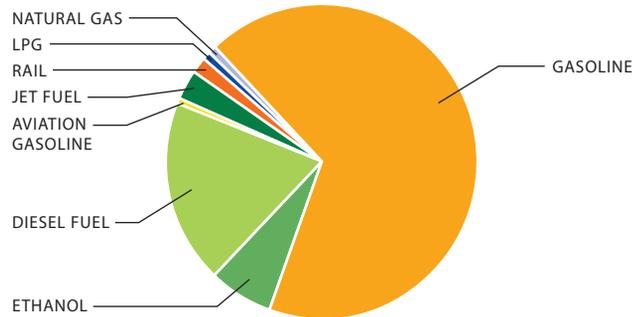
1970-2011 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

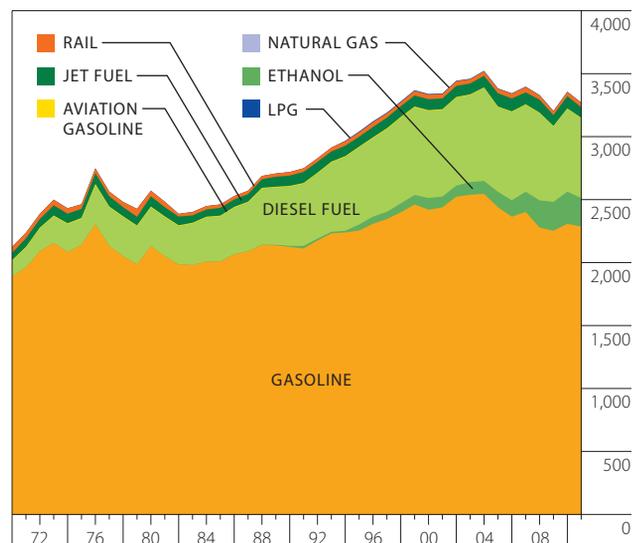
Transportation by Type of Fuel

2011 MILLIONS OF GALLONS AND PERCENT OF TOTAL



Type of Fuel	2011 Millions of Gallons	2011 Percent of Total
Natural Gas	0.5	0.02%
LPG	1.6	0.05%
Aviation Gasoline	2.4	0.1%
Rail	35.8	1.1%
Jet Fuel	83.7	2.6%
Ethanol	227.1	6.9%
Diesel Fuel	634.6	19.4%
Gasoline	2,285.5	69.9%

1970-2011 MILLIONS OF GALLONS



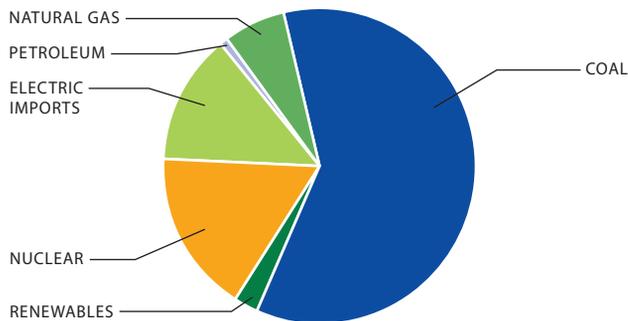
Source: Wisconsin State Energy Office.

Wisconsin Energy Use for Electricity Generation and Electric Utility Sales

Wisconsin's energy use for electric generation decreased by 3.3 percent in 2011, while total electricity sales decreased 0.1 percent despite slight increases in electricity sales in the residential and commercial sectors. Industrial and agricultural electricity sales decreased.

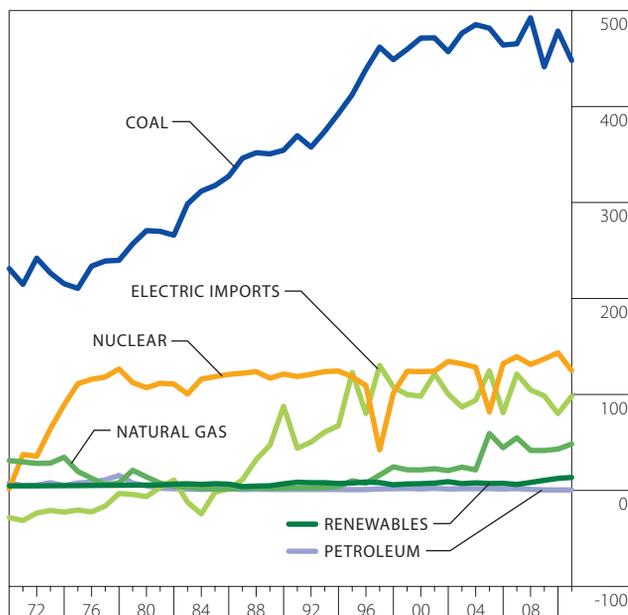
Energy Use for Electricity Generation by Type of Fuel

2011 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2011 Trillions of Btu	2011 Percent of Total
Petroleum	0.5	0.1%
Renewables	13.6	1.9%
Natural Gas	48.3	6.6%
Electric Imports	98.1	13.4%
Nuclear	124.8	17.0%
Coal	448.0	61.1%

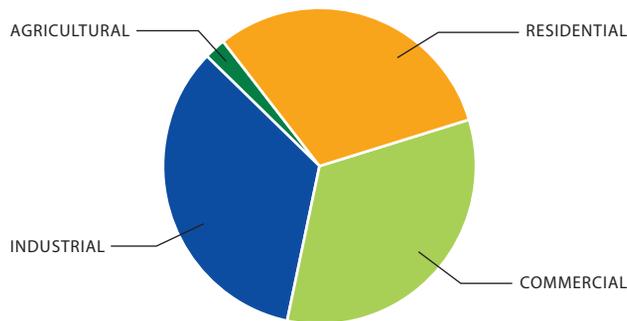
1970-2011 TRILLIONS OF BTU



Source: Wisconsin State Energy Office.

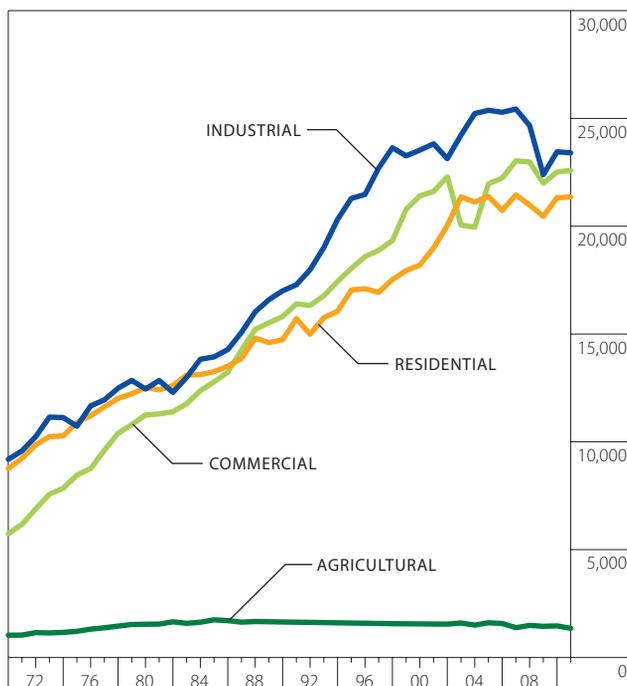
Electric Utility Sales by Economic Sector

2011 MILLIONS OF kWh AND PERCENT OF TOTAL



Economic Sector	2011 Millions of kWh	2011 Percent of Total
Agricultural	1,351	2.0%
Residential	21,356	31.1%
Commercial	22,585	32.9%
Industrial	23,403	34.1%

1970-2011 MILLIONS OF kWh



Source: Wisconsin State Energy Office.

Wisconsin End-Use Energy Expenditures

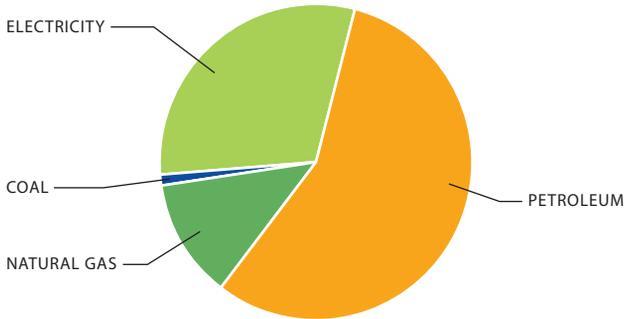
In 2011, Wisconsin's overall energy bill increased by \$2.8 billion (13.6 percent) from 2010.

Expenditures increased for all sectors and all fuels, except natural gas.

Since 2000, Wisconsin's total energy expenditures increased by \$11 billion (92.5 percent increase).

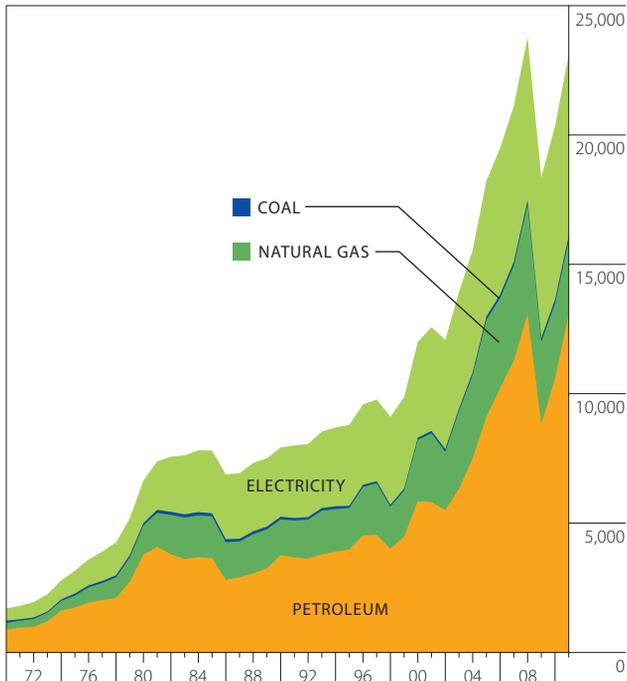
By Type of Fuel

2011 MILLIONS OF DOLLARS AND PERCENT OF TOTAL



Type of Fuel	2011 Millions of Dollars	2011 Percent of Total
Coal (non-utility)	159.9	0.7%
Natural Gas	2,855.0	12.4%
Electricity	7,003.8	30.3%
Petroleum	13,084.6	56.6%

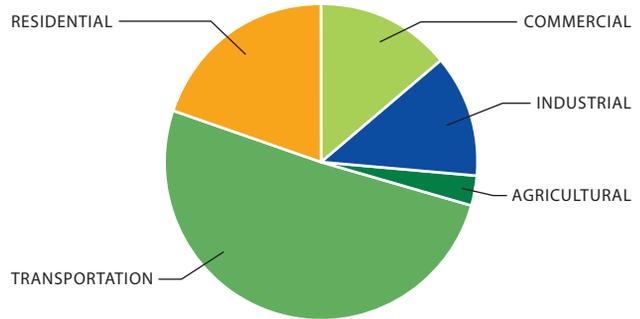
1970-2011 MILLIONS OF DOLLARS



Source: Wisconsin State Energy Office.

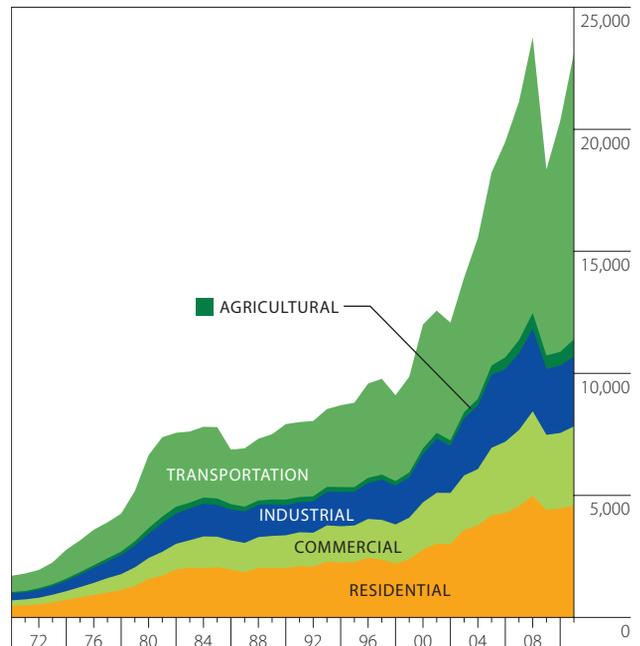
By Economic Sector

2011 MILLIONS OF DOLLARS AND PERCENT OF TOTAL



Economic Sector	2011 Millions of Dollars	2011 Percent of Total
Agricultural	705.7	3.1%
Industrial	2,863.1	12.4%
Commercial	3,241.2	14.0%
Residential	4,584.7	19.8%
Transportation	11,708.5	50.7%

1970-2011 MILLIONS OF DOLLARS



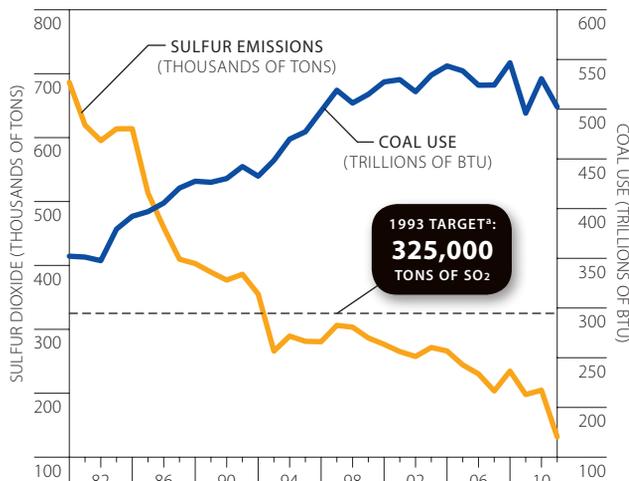
Source: Wisconsin State Energy Office.

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 US 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.

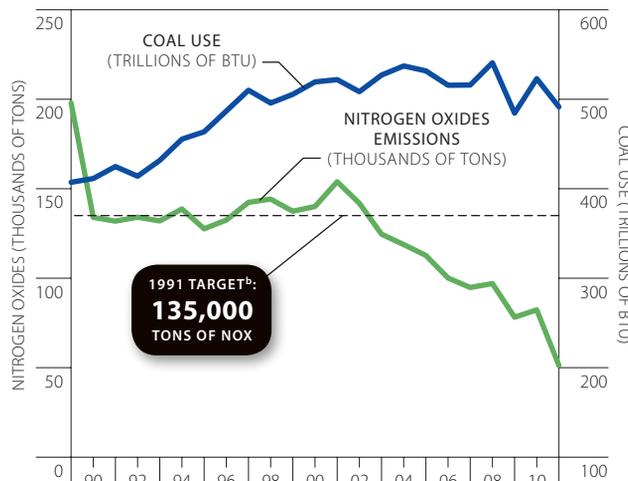
Sulfur Dioxide Emissions and Coal Use

1980-2011



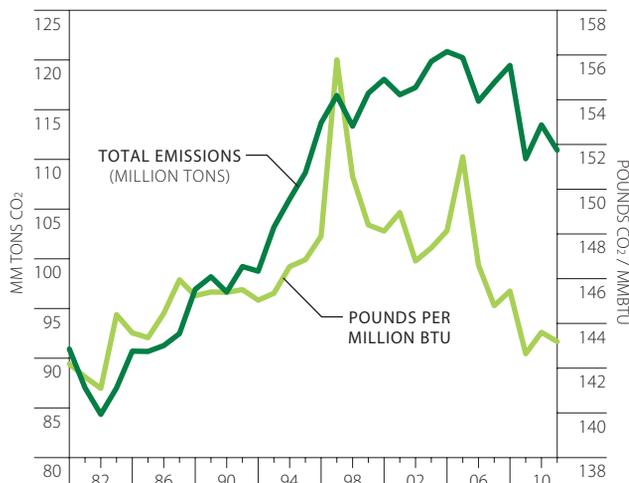
Nitrogen Oxides Emissions and Coal Use

1989-2011



Carbon Dioxide Emissions from Energy Use

1980-2011^c



Utility Sulfur Dioxide Emissions

decreased 17.4 percent from 2010 to 2011.

Wisconsin CO₂ Emissions from Energy

decreased 1.9 percent in 2011.

Since 1990 total CO₂ emissions have increased 14.8 percent.

Utility Nitrogen Oxides Emissions

decreased 9.6 percent from 2010 to 2011.

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.

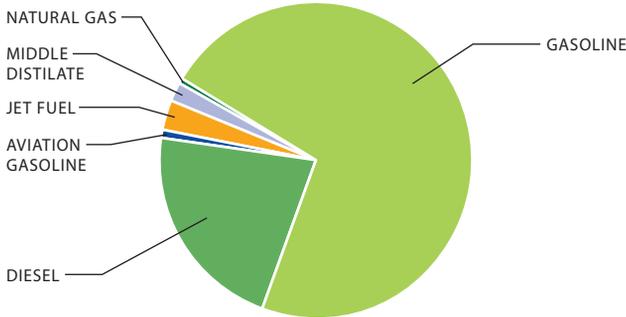
Transportation and Heating Fuels

Wisconsinites spent \$11.7 billion on transportation in 2011, an increase of 23.9 percent, or \$2.3 billion, over 2010.

The increase in expenditures is due primarily to an increase in prices. Of the \$4.6 billion of residential energy spending, about \$1.8 billion (39.2 percent) pays for natural gas and petroleum for space heating.

Transportation Expenditures

2011 MILLIONS OF DOLLARS AND PERCENT OF TOTAL

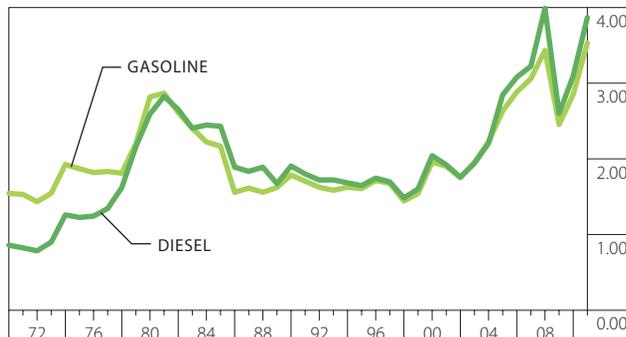


Type of Fuel	2011 Millions of Dollars	2011 Percent of Total
Natural Gas	0.9	0.01%
Aviation Gasoline	9.5	0.1%
Middle Distillate	119.1	1.0%
Jet Fuel	264.4	2.3%
Diesel	2,447.7	20.9%
Gasoline ^a	8,866.9	75.7%

Transportation Fuel Prices

Type of Fuel	2010 Price Per Gallon ^{b,c}	2011 Price Per Gallon ^{b,c}
Gasoline	\$2.851	\$3.529
Diesel	\$3.097	\$3.867

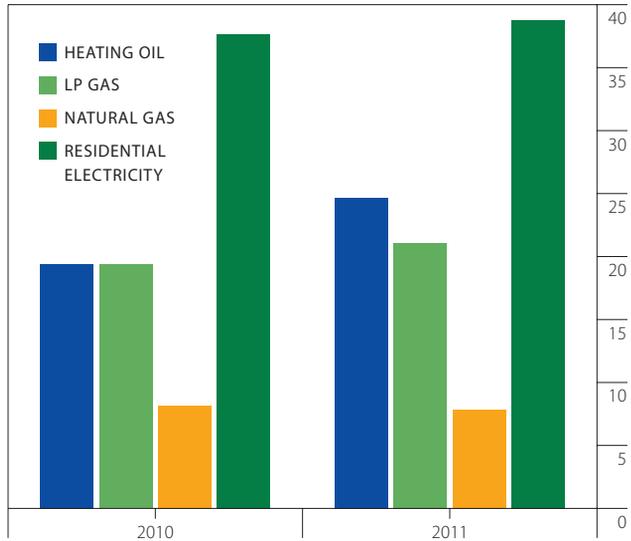
1970-2011 DOLLARS PER GALLON^{b,c}



Heating Fuels Prices

Fuel	% Change	2010 Price ^d	2011 Price ^d
Heating Oil	↑ 27.3%	\$2.69 per gallon	\$3.42 per gallon
LP Gas	↑ 8.8%	\$1.85 per gallon	\$2.01 per gallon
Natural Gas	↓ 3.9%	\$8.17 per MMBtu	\$7.85 per MMBtu
Residential Electricity	↑ 3.1%	\$0.128 per kWh	\$0.132 per kWh

2010-2011 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 energyindependence.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 2011 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.