Wisconsin Energy Statistics

OEI

Wisconsin Office of Energy Innovation

Acknowledgments

The Wisconsin Office of Energy Innovation would like to thank the following individuals and organizations for their invaluable assistance in making the 40th Anniversary Edition of Wisconsin Energy Statistics: Holly O'Higgins, Jim Mapp, the various natural gas pipeline companies, railroad companies, Wisconsin public schools and school districts, and ethanol producers that continue to provide vital data, Wisconsin State Climatology Office, Wisconsin Department of Natural Resources, and the National Agricultural Statistics Service.

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Design and layout by: Kari Hamann Design, Madison, WI.

Photo Credits

Front cover (clockwise from top):

A tour group learns about electricity generation at the Prairie du Sac Hydroelectric power plant owned by Alliant Energy.

Solar panel, native Wisconsin sunflowers. Photo credit: Tom Flinn, Driftless Area, Dane County.

A snow-dusted woodpile will be used to generate heat during a cold Wisconsin winter; Wood pellets await the Grass Creek Greenhouse wood pellet silo.

Forest County Potawatomi Community Renewable Generation Biodigester Facility. Photo credit: Clinton Fandrich, Wisconsin Office of Energy Innovation.

Madison, Wisconsin cityscape at night, looking across Lake Monona from Olin Park. Richard Hurd, Madison, WI 04-20-2011 025b.

WISCONSIN ENERGY STATISTICS

40th Anniversary Edition

1975 – 2015

WISCONSIN OFFICE OF ENERGY INNOVATION
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Foreword

With a burgeoning economy and growing populace, Wisconsin's demand for energy has steadily grown. And with it, the need for communication and transparency. As municipalities, businesses, and utilities across the state set off to help customers find ways to reduce their energy costs and make their energy consumption more efficient, it is paramount that a trusted party take stewardship and coordination of vital information on Wisconsin's energy use trends.

It is with great pride and honor that the Wisconsin Office of Energy Innovation presents the 2018 Wisconsin Energy Statistics, a comprehensive source on Wisconsin's energy use.

Since 1976, the Wisconsin Energy Statistics has been a trusted source of data, imparting crucial knowledge to all of Wisconsin – from business owners, to government officials, to school teachers, and homeowners – on fuel consumption for electricity production, fuel costs, expenditures for fuel by Wisconsin's various economic sectors, economic sector energy use, and much more.

To commemorate the passage of its 40-year milestone, the 2018 Wisconsin Energy Statistics includes 40 years of verified energy use data, beginning in 1975 and ending in 2015[1]. As keepers of the Wisconsin Energy Statistics, the Wisconsin Office of Energy Innovation pledges to continually deliver the most accurate[2] and up-to-date information possible[3]. We hope this year's book provides you with the quality information you have come to expect decades over.

Lon Roberts

Public Service Commission – Chair

1 Forty years of data may not be available for some datasets.
2 The OEI does not produce data. The OEI gathers information from verified sources and aims to maintain the integrity of the raw data from source to book.
3 Some sources present delay in availability of data.

Table of Contents

HIGHLIGHTS

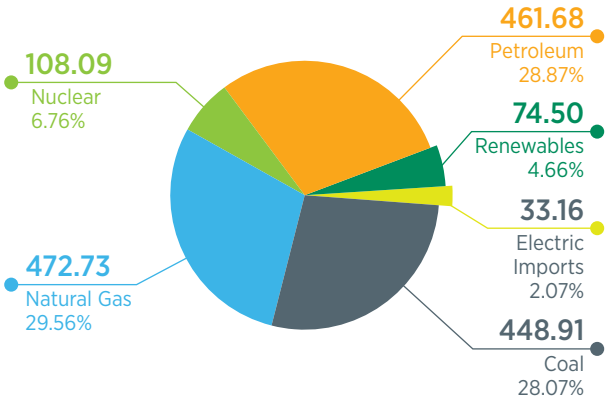
Wisconsin Resource Energy Consumption

Resource energy includes all energy resources used to generate electricity, including the energy content of the coal, petroleum, nuclear and renewable fuels. Resource energy consumption decreased by 3.5 percent in 2015.

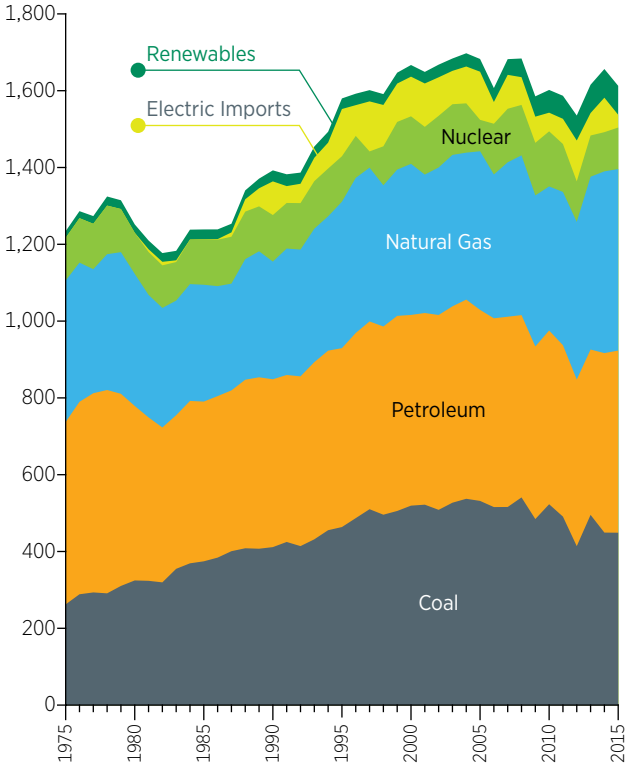
TOTAL RESOURCE ENERGY CONSUMPTION: 1,599.07 TRILLION BTU

By Type of Fuel

2015 (Trillions of Btu and Percent of Total)

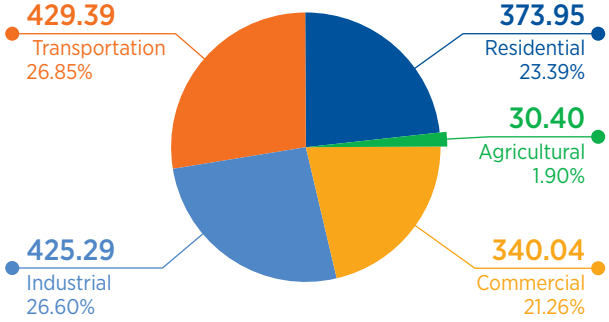


1975-2015 (Trillions of Btu)

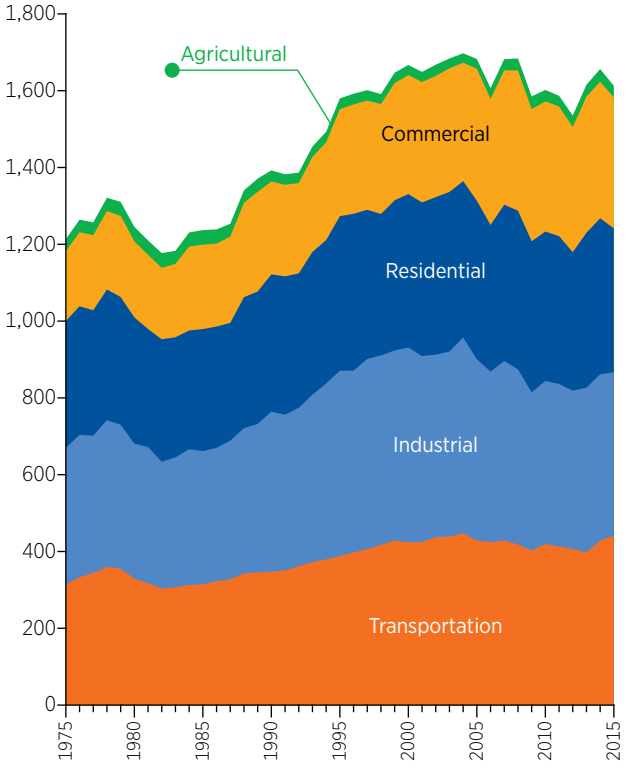


By Economic Sector

2015 (Trillions of Btu and Percent of Total)



1975-2015 (Trillions of Btu)



Source: See Energy Use & Prices by Sector; Renewable Energy; Electric Power Generation; Energy Use for Electricity Generation; Wisconsin Agricultural, Commercial, Industrial, Residential, Transportation Energy Use by Type of Fuel.

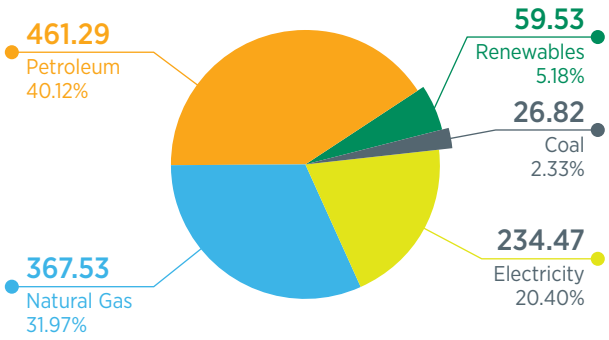
Wisconsin End-Use Energy Consumption

End-use energy is a measure of the energy content of fuels at the point of consumption.
End-use energy decreased by 4.7 percent overall in 2015.

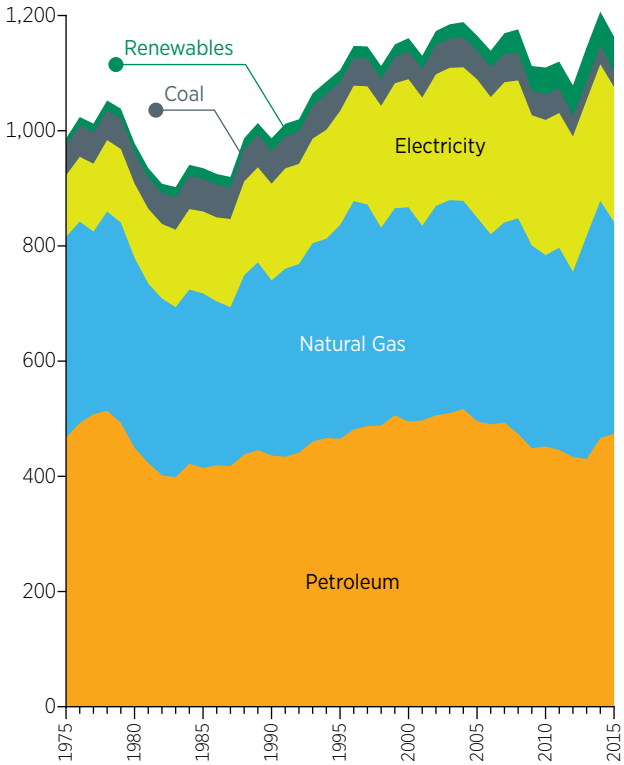
TOTAL END-USE ENERGY CONSUMPTION: 1,149.63 TRILLION BTU

By Type of Fuel

2015 (Trillions of Btu and Percent of Total)

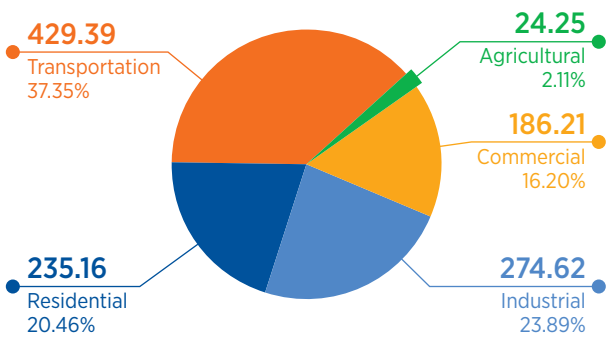


1975-2015 (Trillions of Btu)

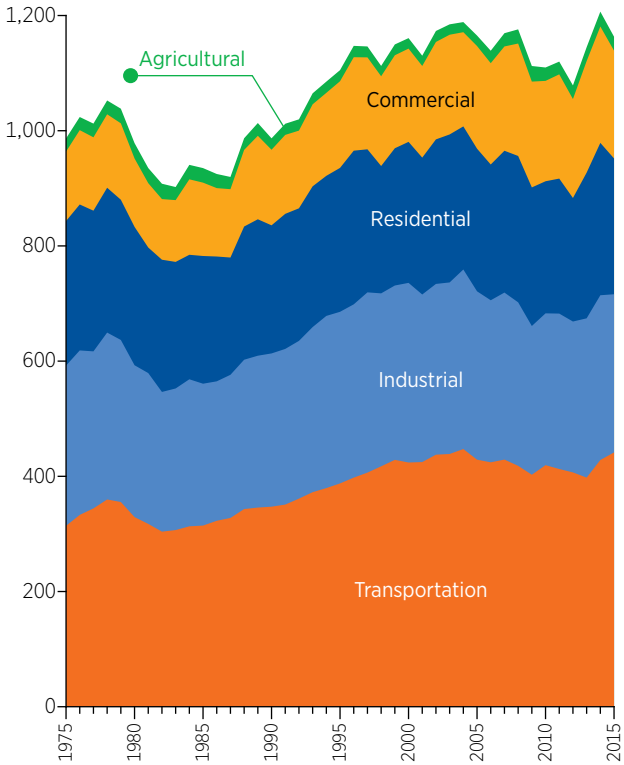


By Economic Sector

2015 (Trillions of Btu and Percent of Total)



1975-2015 (Trillions of Btu)



Source: See Energy Use & Prices by Sector; Energy Use for Electricity Generation; Electric Power Generation; Renewable Energy; Wisconsin Agricultural, Commercial, Industrial, Residential, Transportation Energy Use by Type of Fuel.

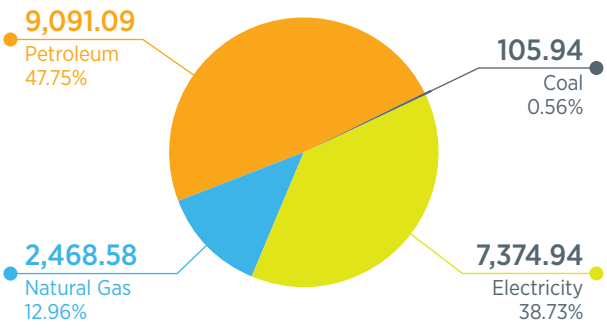
Wisconsin End-Use Energy Expenditures

End-use expenditures decreased by almost $5 billion (20 percent) from 2014 to 2015.
Expenditures decreased for all sectors and all fuels in 2015.

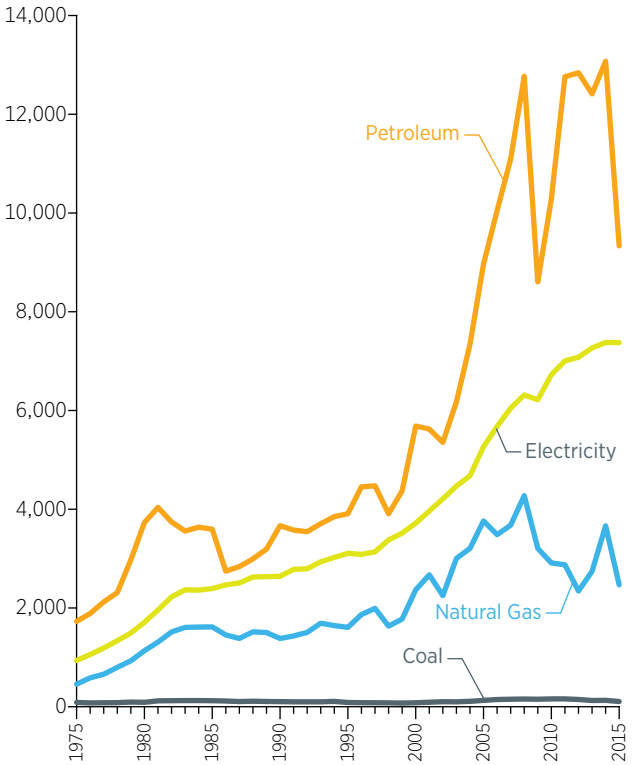
TOTAL END-USE ENERGY EXPENDITURES: $19,040.55 MILLION

By Type of Fuel

2015 (Millions of Dollars and Percent of Total)

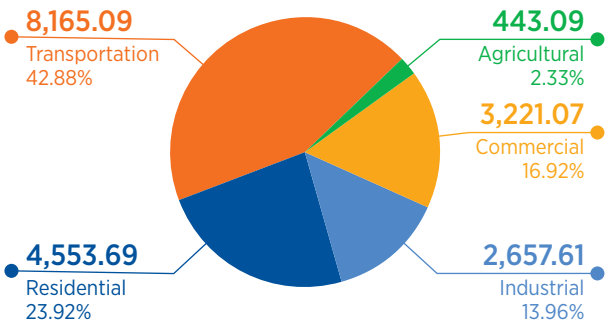


1975-2015 (Millions of Dollars)

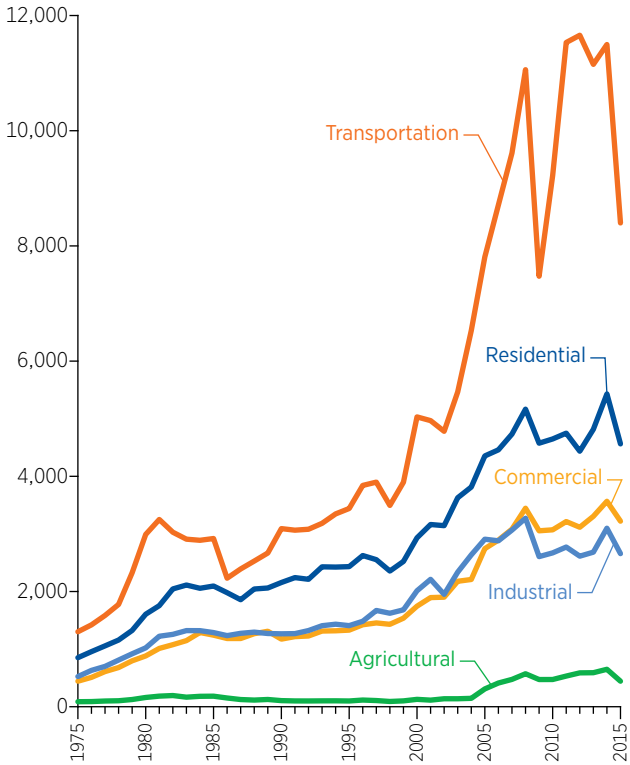


By Economic Sector

2015 (Millions of Dollars and Percent of Total)



1975-2015 (Millions of Dollars)



Source: See Wisconsin Expenditures for Agricultural Energy, Commercial Energy, Industrial Energy, Residential Energy, Transportation Energy, by Type of Fuel.

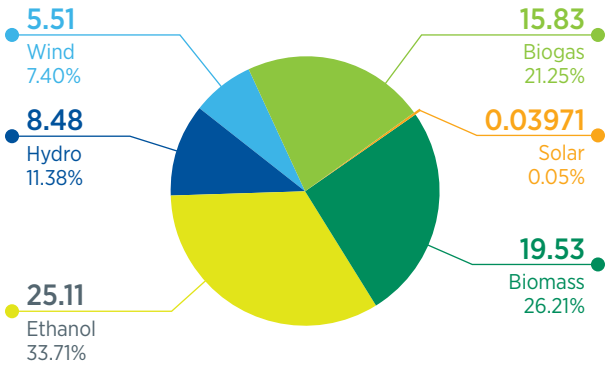
Wisconsin Renewable Energy Production and Use

Renewable energy production includes all renewable energy used for generating electricity and other applications that displace fossil fuels (e.g., space heating, transportation fuel). Overall renewable energy resource use in Wisconsin increased by 1 percent in 2015.

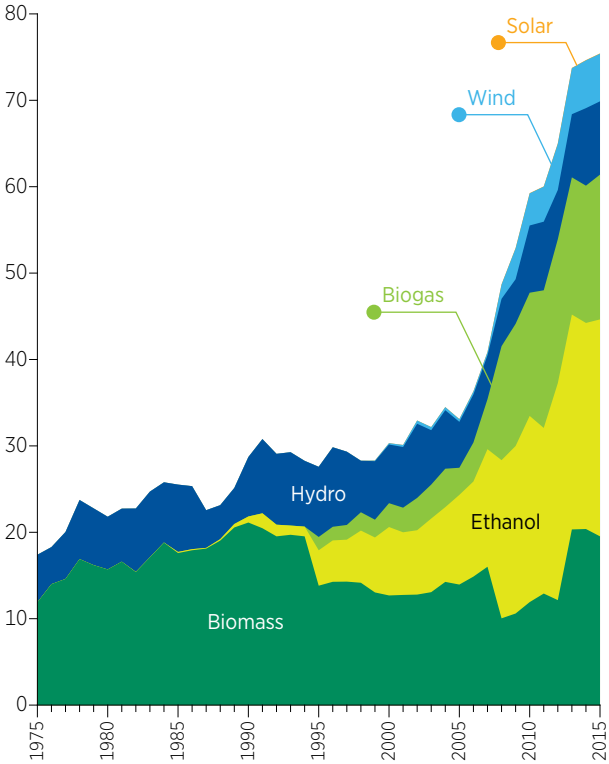
TOTAL RENEWABLE RESOURCE CONSUMPTION: 74.50 TRILLION BTU

By Type of Fuel

2015 (Trillions of Btu and Percent of Total)

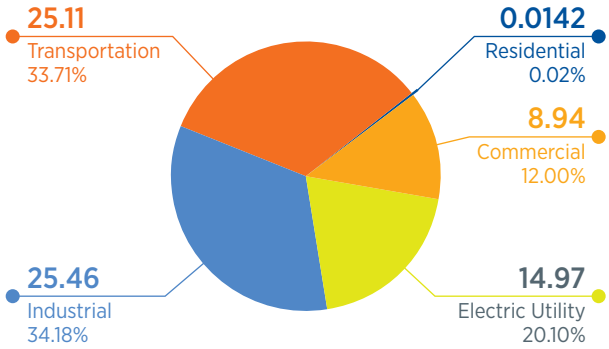


1975-2015 (Trillions of Btu)

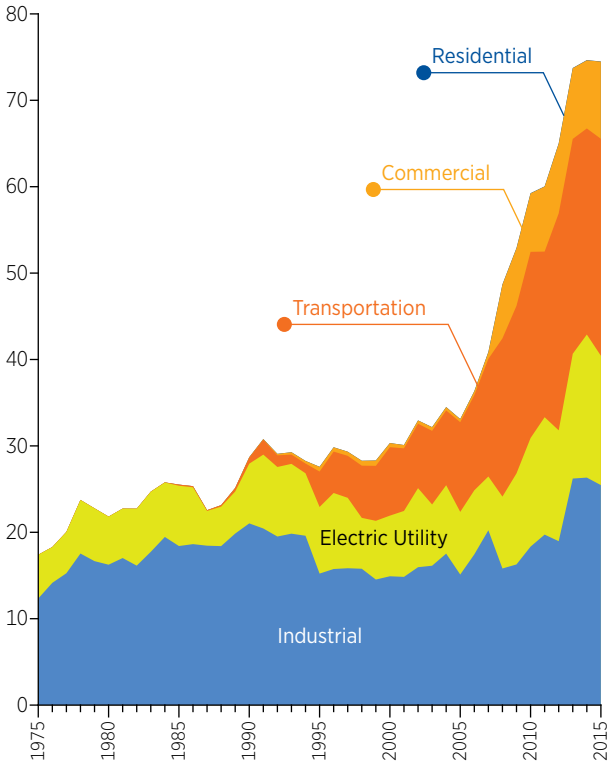


By Economic Sector

2015 (Trillions of Btu and Percent of Total)



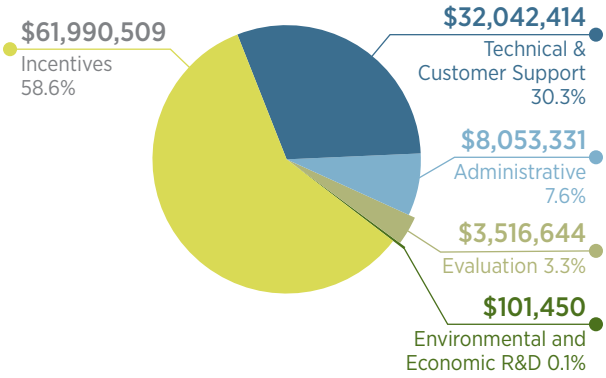
1975-2015 (Trillions of Btu)



Source: See Wisconsin Renewable Energy Production and Use, by Economic Sector; Wisconsin Renewable Energy Use, by Fuel.

Focus on Energy Total Dollars Spent, by Expenditure Category and Lifecycle Verified Gross and Net Savings

Total Dollars Spent, by Expenditure Category
2015



TOTAL EXPENDITURES: $105,704,348

ADMINISTRATIVE

Costs that are necessary to the development and administration of programs.

TECHNICAL & CUSTOMER SUPPORT

Costs associated with project identification, engineering calculation & modeling, inspection of installed projects, contractor outreach, technical training, customer service and marketing.

INCENTIVES

Cash incentives paid to customers and contractors, and instant discounts received for purchases at participating retail locations.

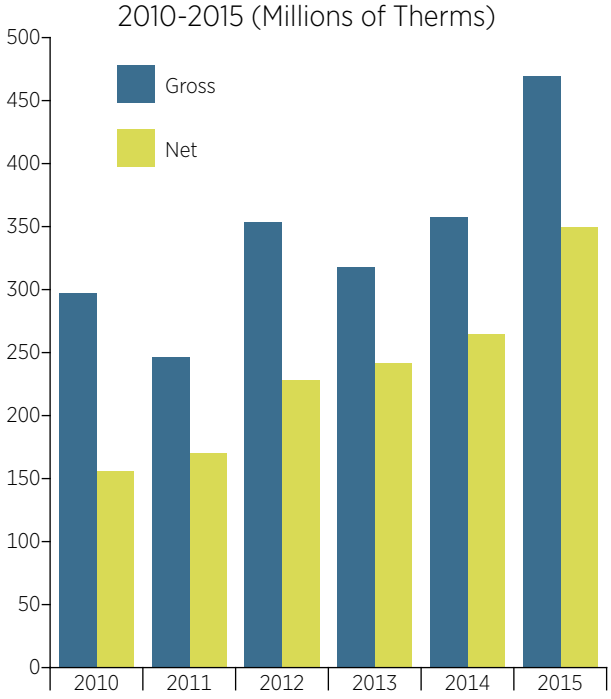
EVALUATION

Costs associated with independently verifying program energy savings and supporting continuous program improvement.

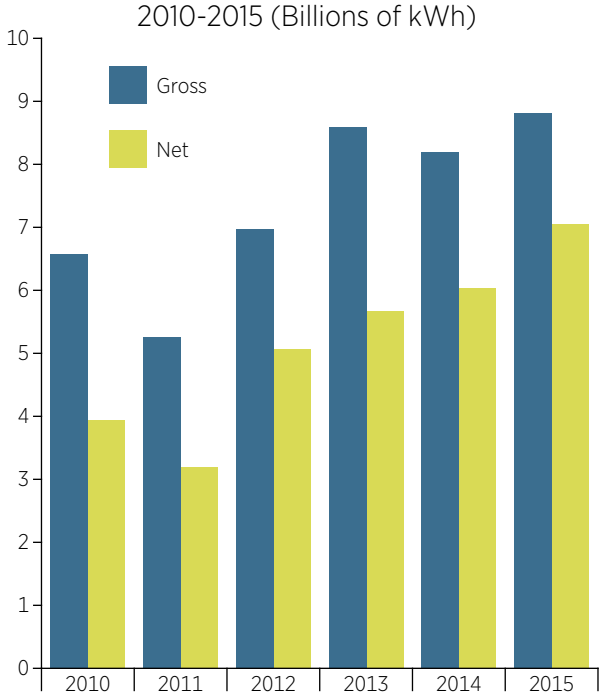
ENVIRONMENTAL & ECONOMIC RESEARCH AND DEVELOPMENT PROGRAM (EERD)

Energy efficiency and renewable energy research projects that allow Wisconsin to further its efforts towards reducing energy waste, costs, and environmental impacts.

Total Lifecycle Savings
2010-2015 (Millions of Therms)



Total Lifecycle Savings
2010-2015 (Billions of kWh)



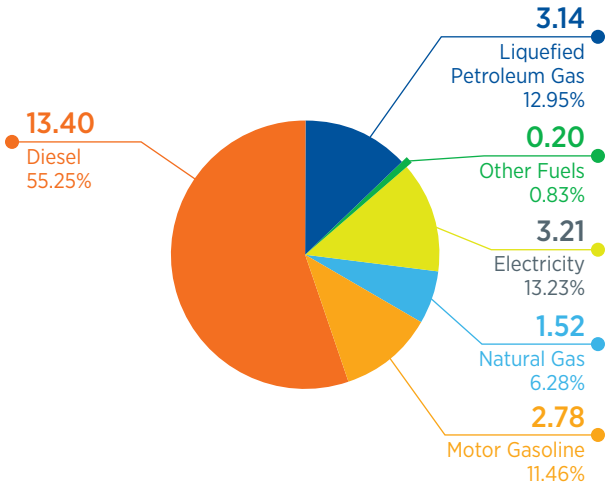
Source: Public Service Commission of Wisconsin, Public Service Commission Report to the Legislature, Energy Efficiency and Renewable Resource Program Activities in Wisconsin (2016) https://psc.wi.gov/Documents/2016FocusReportToLegislatureFINAL.pdf. Focus on Energy, *Evaluation Report* (2009-2015) https://focusonenergy.com/evaluation-reports.

Wisconsin Agricultural and Transportation Energy Use

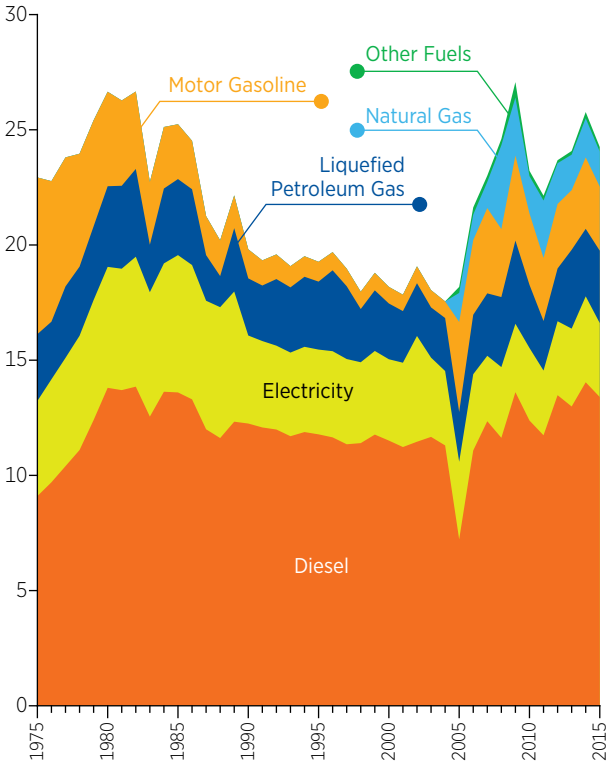
Agricultural petroleum consumption decreased 4.0 percent in 2015, electricity use decreased by 14.1 percent, with total energy end-use decreasing by 5.9 percent. The average statewide price of gasoline decreased by $0.99 a gallon in 2015, to $2.41 a gallon. Total motor gasoline use by the transportation sector increased by 0.4 percent with overall petroleum use increasing by 3 percent.

Agricultural by Type of Fuel

2015 (Trillions of Btu and Percent of Total)

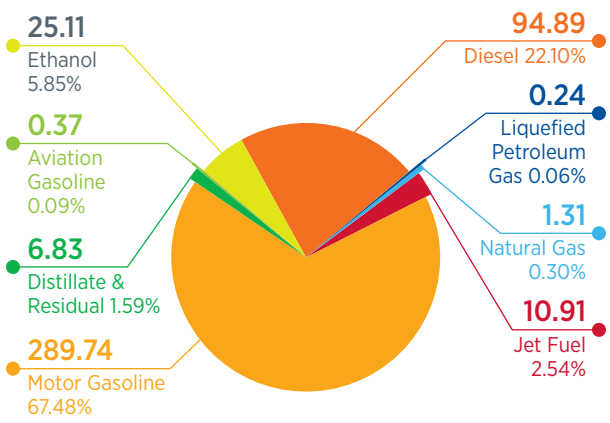


1975-2015 (Trillions of Btu)

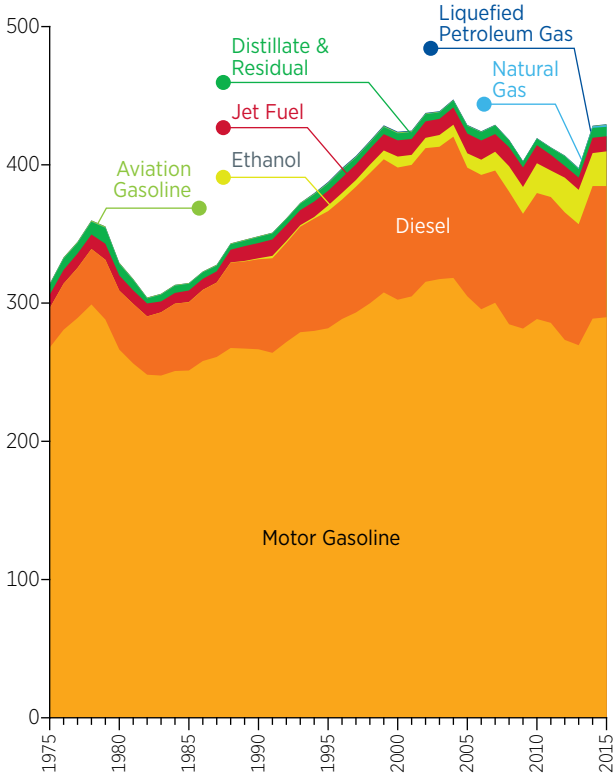


Transportation by Type of Fuel

2015 (Trillions of Btu and Percent of Total)



1975-2015 (Trillions of Btu)



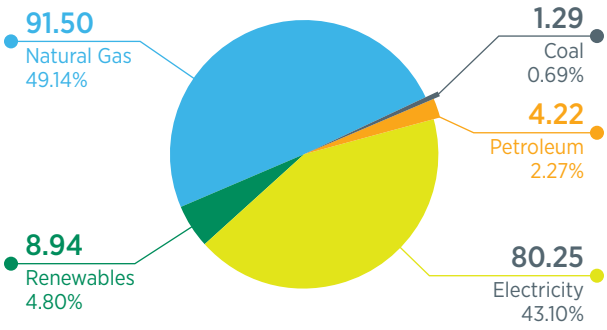
Source: See Wisconsin Agricultural Energy Use by Type of Fuel, Wisconsin Transportation Energy Use, by Type of Fuel.

Wisconsin Commercial and Industrial Energy Use

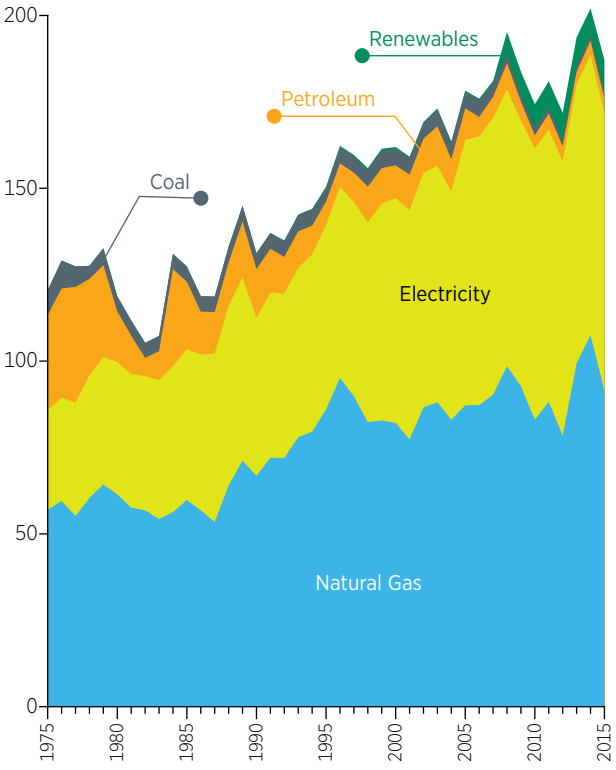
Commercial and industrial sector end-use energy consumption decreased 7.8 percent and 4 percent, respectively. Commercial sector natural gas use (49.1 percent) surpassed electricity (43.1 percent) as the major energy source. The industrial sector's primary fuel is natural gas, comprising 51.6 percent of industrial energy consumption.

Commercial by Type of Fuel

2015 (Trillions of Btu and Percent of Total)

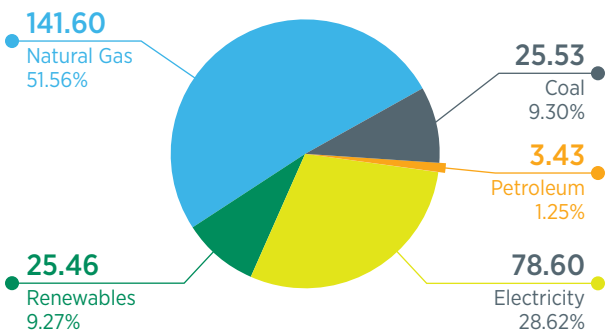


1975-2015 (Trillions of Btu)

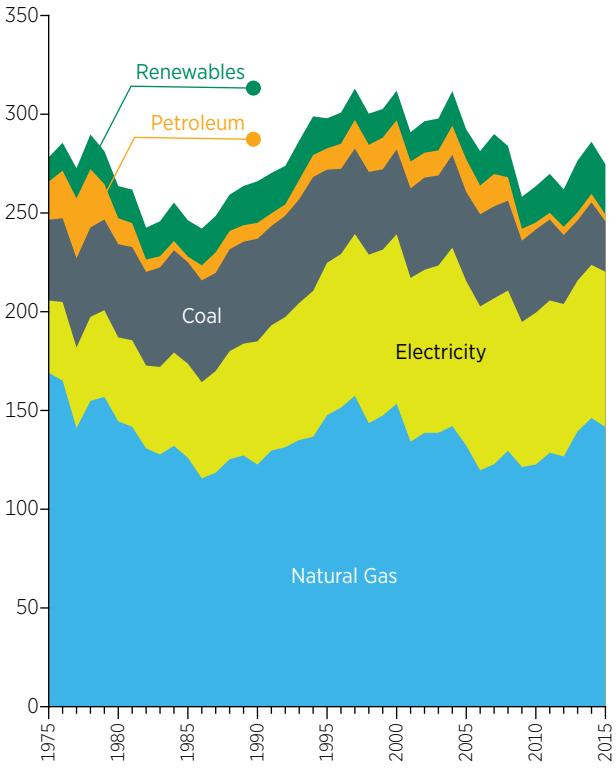


Industrial by Type of Fuel

2015 (Trillions of Btu and Percent of Total)



1975-2015 (Trillions of Btu)



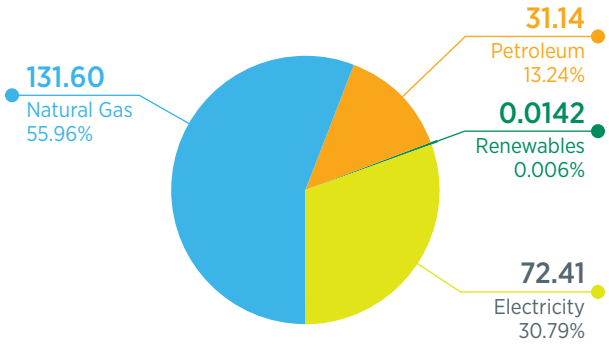
Source: See Wisconsin Commercial Energy Use by Type of Fuel, Wisconsin Industrial Energy Use by Type of Fuel.

Wisconsin Residential Energy Use

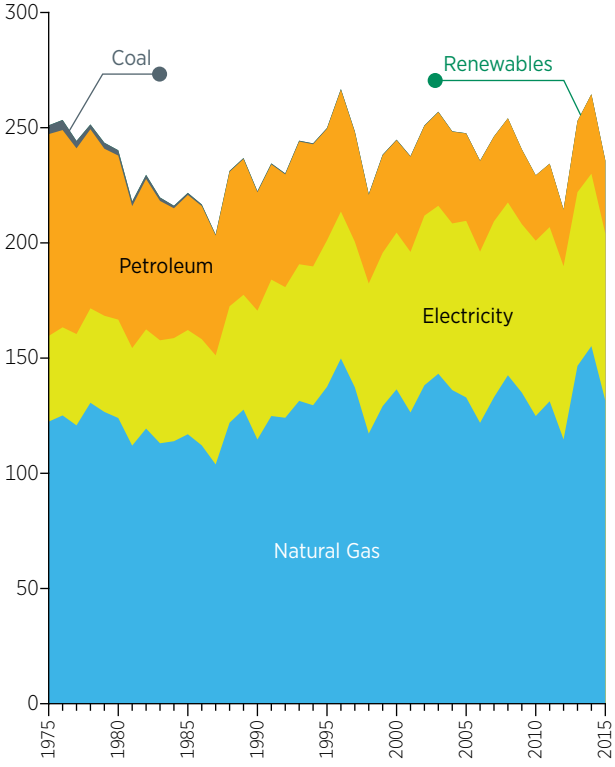
Natural gas is the dominant fuel used by the residential sector (56 percent), primarily for space heating in Wisconsin homes. Natural gas use decreased 15.2 percent in 2015 with resource energy consumption and end-use consumption both decreasing 11 and 8 percent, respectively. Of the $4.5 billion of residential energy spending, about 34 percent ($1.6 billion) pays for natural gas and petroleum for space heating.

By Type of Fuel

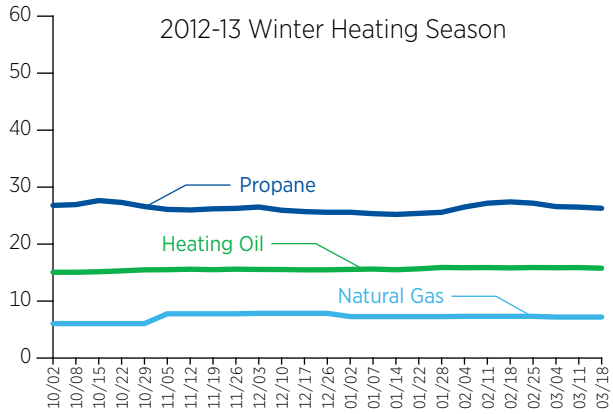
2015 (Trillions of Btu and Percent of Total)

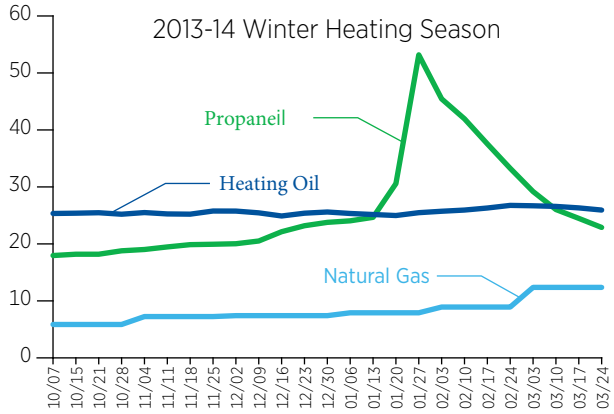


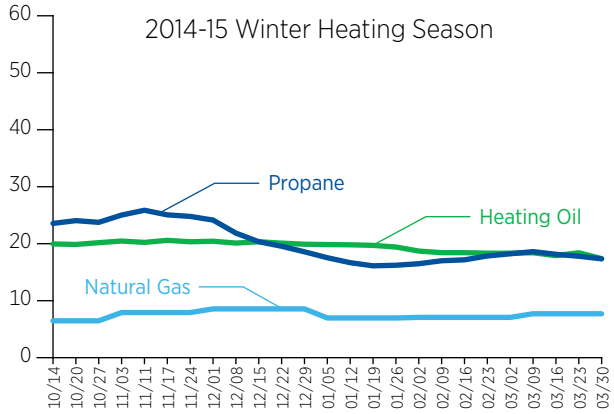
1975-2015 (Trillions of Btu)



Winter Energy Prices (Dollars per Million Btu)







Source: See Wisconsin Residential Energy Use, by Type of Fuel, Wisconsin Residential Energy Prices, by Type of Fuel Winter Heating Season.

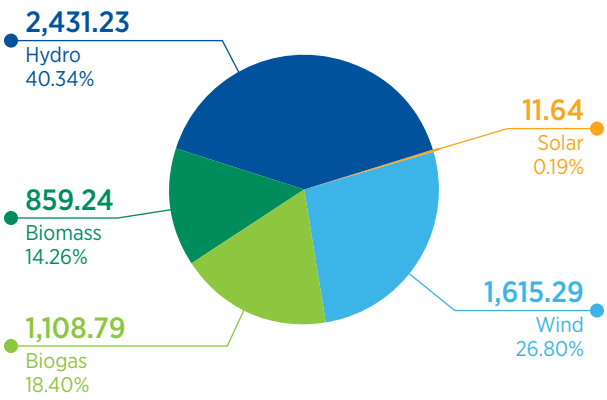
Wisconsin Energy Use for Electricity Generation

Renewable energy electricity generation decreased by 6 percent in 2015. Biomass and hydro electricity generation decreased by 23 percent and 5 percent, respectively, while all other renewables saw minor decreases. Wisconsin's total energy use for electric generation decreased by 0.44 percent in 2015, with the most significant decrease in electric imports (63 percent). Nuclear energy use for electricity generation increased by 6 percent and coal use increased 1 percent.

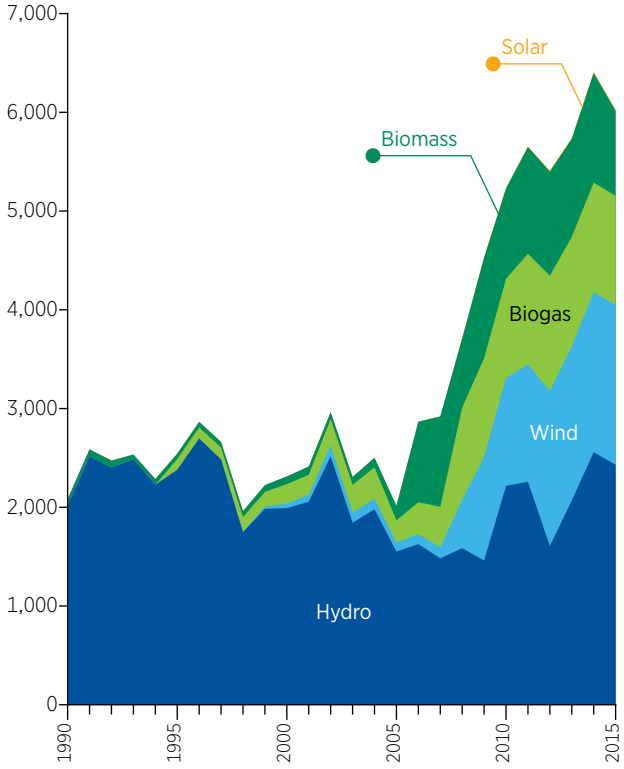
TOTAL RENEWABLE ENERGY USE FOR ELECTRICITY GENERATION: 6,026.19 MILLION kWh

Renewable by Type of Fuel

2015 (Millions of kWh and Percent of Total)



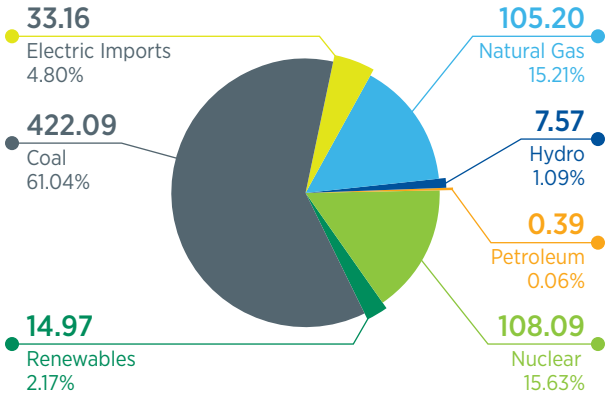
1990-2015 (Millions of kWh)



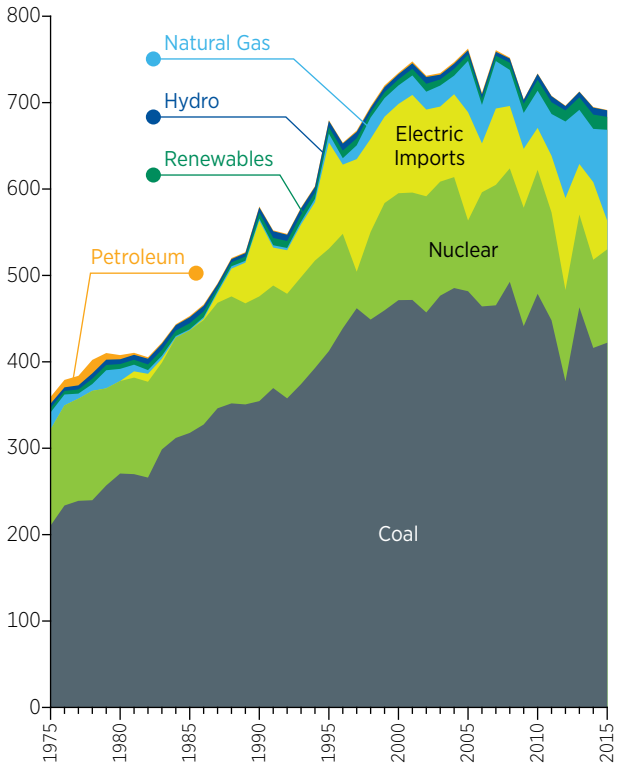
TOTAL ENERGY USE FOR ELECTRICITY GENERATION: 683.91 TRILLION BTU

All Fuels by Type of Fuel

2015 (Trillions of Btu and Percent of Total)



1975-2015 (Trillions of Btu)

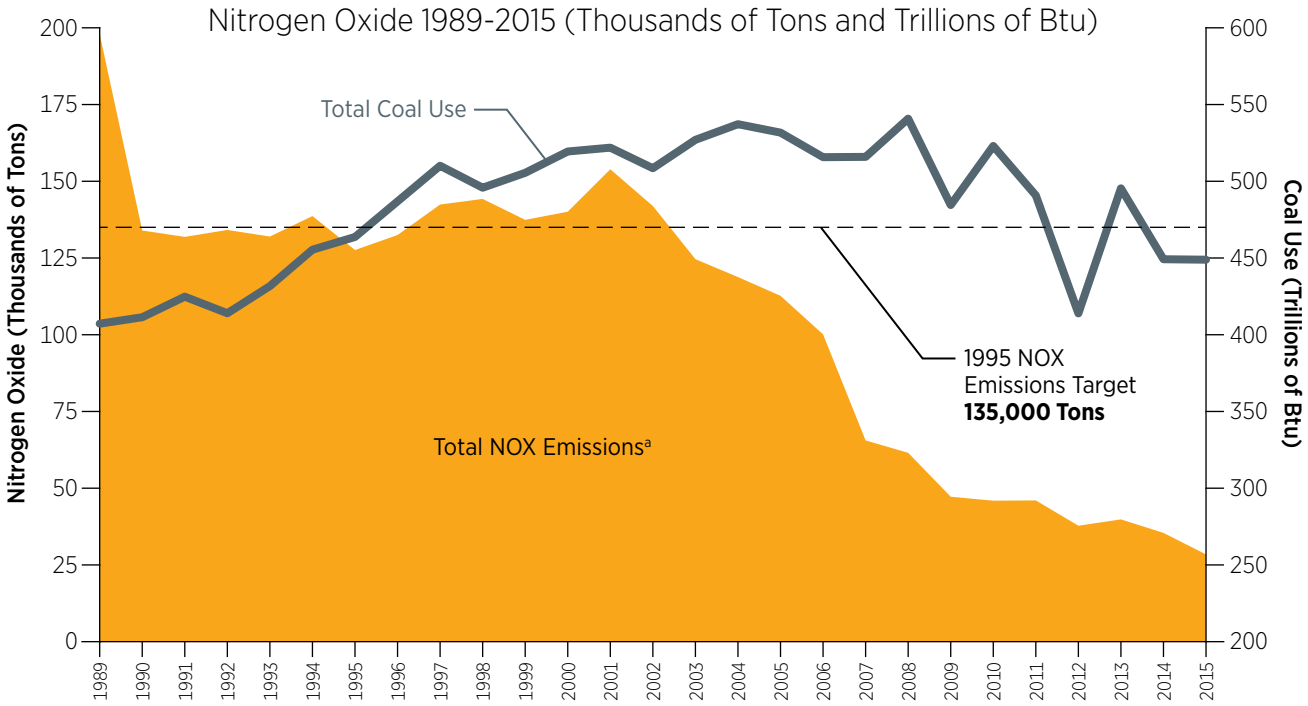


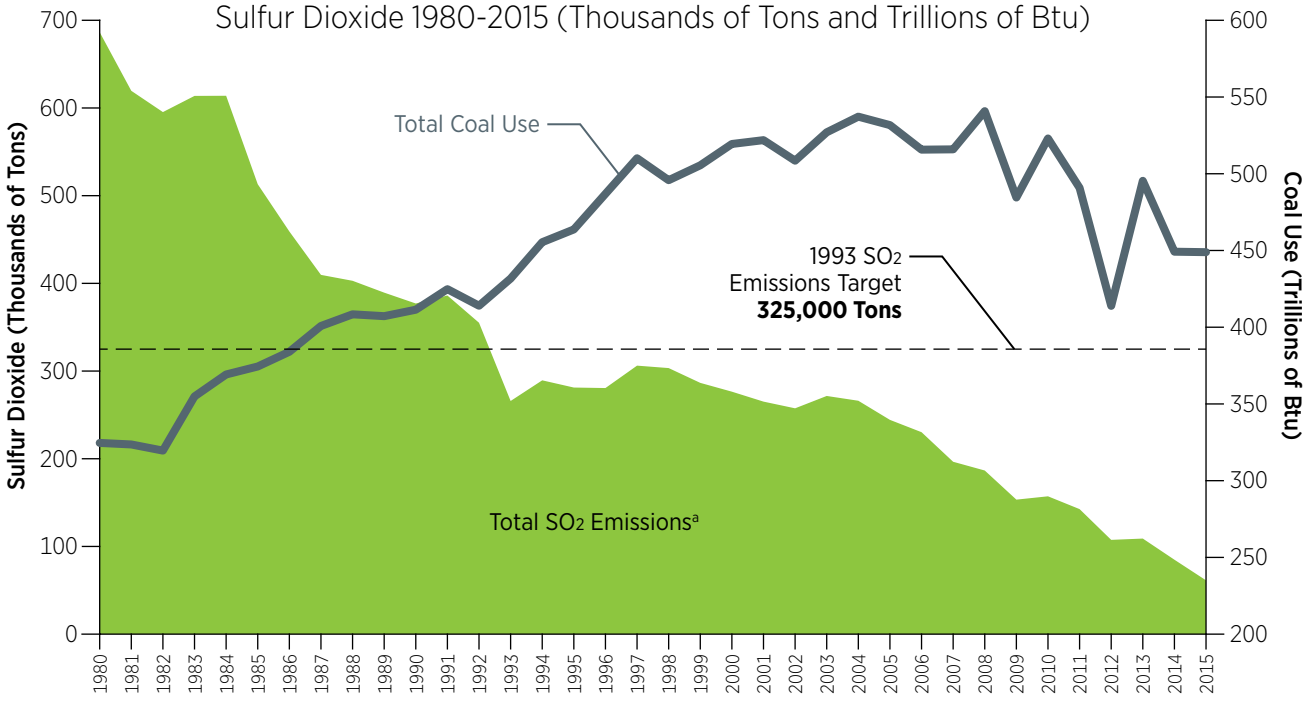
Source: See Energy Use & Prices by Sector; Electric Power Generation, and Wisconsin Renewable Energy Electricity Generated and Purchased.

Wisconsin Nitrogen Oxide and Sulfur Dioxide Emissions and Coal Use

SO_2 and NOX emissions are pollutants measured to monitor air quality. SO_2 emissions decreased by 27.7 percent from 2014 to 2015, and NOX emissions decreased by 20 percent. 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.

TOTAL NOX EMISSIONS: 28,414 TONS • TOTAL SO_2 EMISSIONS: 61,345 TONS





Source: See Electric Utility Nitrogen Oxide (NOX) Emissions and Emission Rates, Electric Utility Sulfur Dioxide Emissions and Emission Rates.

Total Energy Use

There are two common ways to account for energy use: **resource** energy consumption and **end-use** energy consumption. **Resource** energy includes all energy resources used to generate electricity, including the energy content of the coal, petroleum, nuclear and renewable fuels. **End-use** refers to the energy content of electricity and other fuels at the point of use by customers, the economic sectors: agricultural, commercial, industrial, residential, and transportation. About 70 percent of the energy used to generate and distribute electricity is lost as waste heat, making resource consumption greater than end-use consumption.

As resource consumption of coal decreases, natural gas use increases. Natural gas makes up almost 30 percent of resource energy consumption in Wisconsin, with coal close at almost 28 percent. Coal remains the primary fuel used for electricity generation in Wisconsin, accounting for over 61 percent of the state's total net electricity generation, or 422.1 trillion Btus. Natural gas fired power plants have contributed an increasing share at 15 percent of total net generation while nuclear power supplies approximately 16 percent. Nuclear power in Wisconsin is no longer owned by utilities, but by independent power producers who sell the power to customers in Wisconsin and other states.

Prior to 1996, petroleum was Wisconsin's leading energy source, but its share of resource energy use has fallen from a peak of 40 percent in 1977 to 28.9 percent in 2015. The transportation sector constitutes the largest energy user in Wisconsin, consuming nearly 38 percent of all fuel in the state, most of that made up of petroleum (40 percent of the state's total end-use). Since 2012, energy use has increased in all sectors: residential end-use energy consumption increased 9.9 percent, commercial 8.9 percent, industrial 4.8 percent, agricultural 2.4 percent and transportation 8.5 percent.

Renewable energy use has steadily grown, increasing by 8.9 percent to make up 5.2 percent of Wisconsin's overall end-use energy consumption. Electric power generation by renewables comes primarily from hydroelectric, biogas, and wind energy providing about 2 percent of total net generation.

Resource Energy Consumption

2013	Percent Change from Previous Year	Percent of Wisconsin's Resource Energy Consumption
Overall	▲ 13.4%	
BY FUEL		
Coal	▲ 19.7%	27.0%
Electricity Imports	▲ 9.7%	26.7%
Natural Gas	▼ -0.8%	6.9%
Nuclear	▲ 5.2%	6.9%
Petroleum	▼ -0.8%	28.3%
Renewables	▲ 13.4%	4.2%
BY ECONOMIC SECTOR		
Agricultural	▲ 3.0%	20.5%
Commercial	▲ 8.8%	20.5%
Industrial	▲ 4.1%	26.0%
Residential	▲ 11.8%	22.7%
Transportation	▼ -2.2%	25.6%

2014		
Overall	▲ 1.2%	
BY FUEL		
Coal	▼ -9.3%	30.7%
Electricity Imports	▲ 5.2%	27.9%
Natural Gas	▲ 8.6%	6.6%
Nuclear	▲ 2.5%	6.6%
Petroleum	▲ 8.6%	26.7%
Renewables	▲ 1.2%	4.6%
BY ECONOMIC SECTOR		
Agricultural	▲ 6.6%	22.4%
Commercial	▲ 0.3%	22.4%
Industrial	▲ 1.0%	27.0%
Residential	▲ 0.8%	25.4%
Transportation	▲ 7.7%	25.1%

2015		
Overall	▼ -3.4%	
BY FUEL		
Coal	▼ -0.1%	28.1%
Electricity Imports	▼ -63.1%	2.1%
Natural Gas	▼ -0.1%	29.5%
Nuclear	▲ 5.9%	6.8%
Petroleum	▼ -1.2%	28.9%
Renewables	▲ 1.0%	4.7%
BY ECONOMIC SECTOR		
Agricultural	▼ -7.5%	22.4%
Commercial	▼ -4.2%	22.4%
Industrial	▼ -1.8%	27.3%
Residential	▼ -8.0%	25.6%
Transportation	▲ 0.3%	27.0%

End-Use Energy Consumption

2013	Percent Change from Previous Year	Percent of Wisconsin's End-Use Energy Consumption
Overall	▲ 6.1%	
BY FUEL		
Coal	▼ -11.5%	2.8%
Electricity Imports	▲ 0.4%	20.6%
Natural Gas	▲ 20.4%	33.8%
Petroleum	▼ -0.7%	37.6%
Renewables	▲ 13.6%	5.2%
BY ECONOMIC SECTOR		
Agricultural	▲ 1.7%	2.1%
Commercial	▲ 12.7%	16.9%
Industrial	▲ 5.6%	24.2%
Residential	▲ 17.9%	22.1%
Transportation	▼ -2.2%	34.7%

2014		
Overall	▲ 5.4%	
BY FUEL		
Coal	▲ 2.8%	2.7%
Electricity Imports	▲ 0.5%	19.7%
Natural Gas	▲ 6.3%	34.1%
Petroleum	▲ 8.5%	38.7%
Renewables	▼ -2.0%	4.8%
BY ECONOMIC SECTOR		
Agricultural	▲ 7.0%	2.1%
Commercial	▲ 4.3%	16.7%
Industrial	▲ 3.4%	23.7%
Residential	▲ 4.6%	21.9%
Transportation	▲ 7.7%	35.5%

2015		
Overall	▼ -4.7%	
BY FUEL		
Coal	▼ -19.1%	2.3%
Electricity Imports	▼ -1.1%	20.4%
Natural Gas	▼ -10.7%	31.9%
Petroleum	▼ -1.2%	40.1%
Renewables	▲ 4.1%	5.2%
BY ECONOMIC SECTOR		
Agricultural	▼ -5.9%	2.1%
Commercial	▼ -7.4%	16.3%
Industrial	▼ -4.0%	23.9%
Residential	▼ -11.1%	20.4%
Transportation	▲ 0.3%	37.3%

Wisconsin Resource Energy Consumption, by Type of Fuel

1975-2015 (Trillions of Btu)

Year	Coal[a]	Electric Imports[b]	Natural Gas	Nuclear[c]	Petroleum	Renewables[r,p]	Total
1975	262.30	-20.40	368.33	111.15	475.00	17.40	1,213.79
1976	288.60	-22.36	362.41	115.80	501.20	18.29	1,263.93
1977	293.40	-16.25	322.99	118.21	518.80	20.04	1,257.18
1978	291.00	-3.17	353.71	126.55	529.50	23.74	1,321.33
1979	310.30	-4.17	368.84	112.35	500.40	22.77	1,310.49
1980	324.60	-6.46	343.99	107.05	454.40	21.80	1,245.39
1981	323.60	7.27	319.00	111.72	425.60	22.74	1,209.93
1982	319.60	9.20	311.32	110.91	403.36	22.76	1,177.14
1983	354.90	4.50	298.43	100.45	400.01	24.70	1,183.01
1984	369.20	-7.32	304.22	116.02	422.92	25.78	1,230.82
1985	374.42	-1.80	304.24	118.56	415.98	25.52	1,236.92
1986	384.05	1.55	286.32	120.93	420.62	25.34	1,238.79
1987	400.77	11.24	278.04	122.13	418.76	22.55	1,253.49
1988	408.39	32.18	313.97	123.81	438.93	23.14	1,340.43
1989	407.21	47.11	328.13	116.99	446.45	25.13	1,371.01
1990	411.42	87.67	306.43	121.22	437.09	28.70	1,392.52
1991	424.81	43.90	329.29	118.70	434.84	30.79	1,382.34
1992	414.02	50.41	330.09	121.04	442.08	29.08	1,386.71
1993	431.68	60.94	347.48	123.82	461.43	29.27	1,454.63
1994	455.45	67.51	349.82	124.37	467.61	28.26	1,493.02
1995	463.66	123.00	381.24	118.48	465.91	27.58	1,579.86
1996	486.86	80.15	403.80	109.31	482.24	29.84	1,592.20
1997	510.11	130.33	400.44	42.29	488.98	29.32	1,601.47
1998	495.81	107.72	367.74	101.49	490.11	28.28	1,591.13
1999	505.52	99.93	380.93	124.15	508.06	28.32	1,646.89
2000	519.40	103.31	393.44	123.76	496.66	30.32	1,666.88
2001	521.92	113.02	360.47	124.28	499.14	30.11	1,648.94
2002	508.48	100.39	384.17	134.45	507.39	32.94	1,667.82
2003	527.04	86.91	394.32	131.98	511.41	32.18	1,683.83
2004	537.25	95.95	382.67	128.39	518.74	34.49	1,697.49
2005	531.72	125.40	413.06	81.80	497.51	33.11	1,682.60
2006	515.67	56.63	374.47	132.13	491.64	36.32	1,606.87
2007	515.91	88.35	402.15	139.43	495.46	40.87	1,682.17
2008	540.83	72.27	416.02	131.27	474.79	48.70	1,683.88
2009	484.45	68.18	393.29	136.98	449.52	52.89	1,585.31
2010	523.03	48.63	375.22	143.43	452.43	59.26	1,602.02
2011	490.82	65.60	399.10	124.85	446.38	60.02	1,586.77
2012[r]	413.90	106.43	410.37	105.66	433.97	65.01	1,535.35
2013	495.35	58.51	449.98	107.37	430.60	73.74	1,615.56
2014	449.24	89.81	473.28	102.03	467.43	74.66	1,656.44
2015	448.91	33.16	472.73	108.09	461.68	74.50	1,599.07

a Includes petroleum coke.

b Reflects the resource energy assumed to be used in other states or Canada to produce electricity imported into Wisconsin, estimated at 11,300 Btu/kWh. Negative values may indicate out-of-state exports and/or line losses.

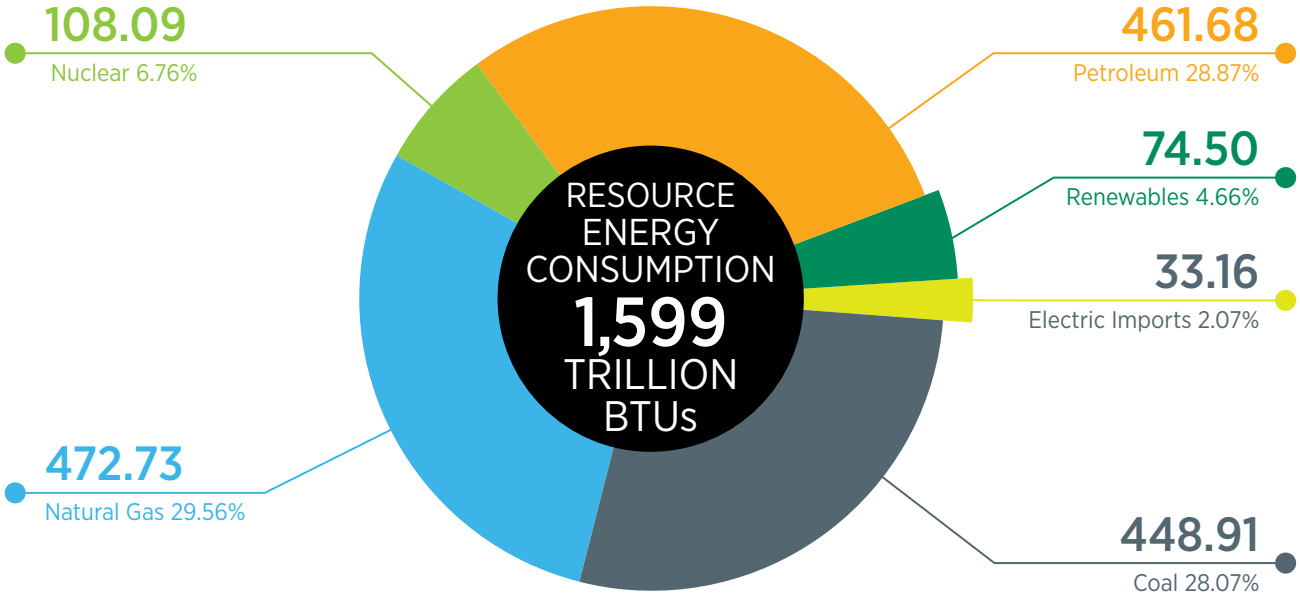
c Data from power plants now owned by independent power producers, formerly owned by Wisconsin utilities.

r Revised.

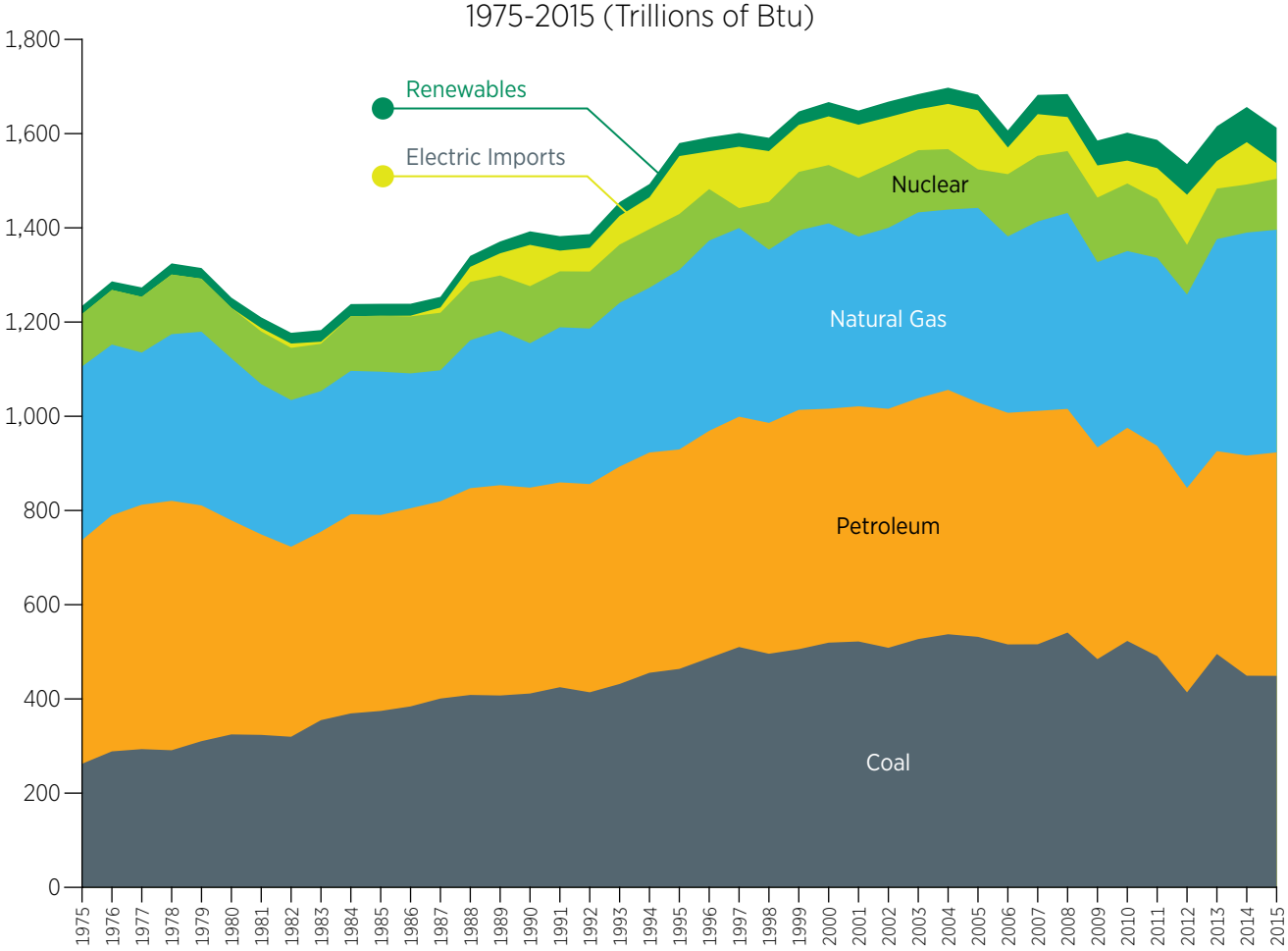
p Preliminary.

Source: See Energy Use & Prices by Sector; Renewable Energy; Electric Power Generation; Energy Use for Electricity Generation.

Wisconsin Resource Energy Consumption, by Type of Fuel
2015 (Trillions of Btu and Percent of Total)



Wisconsin Resource Energy Consumption, by Type of Fuel
1975-2015 (Trillions of Btu)



Wisconsin Resource Energy Consumption, by Economic Sector

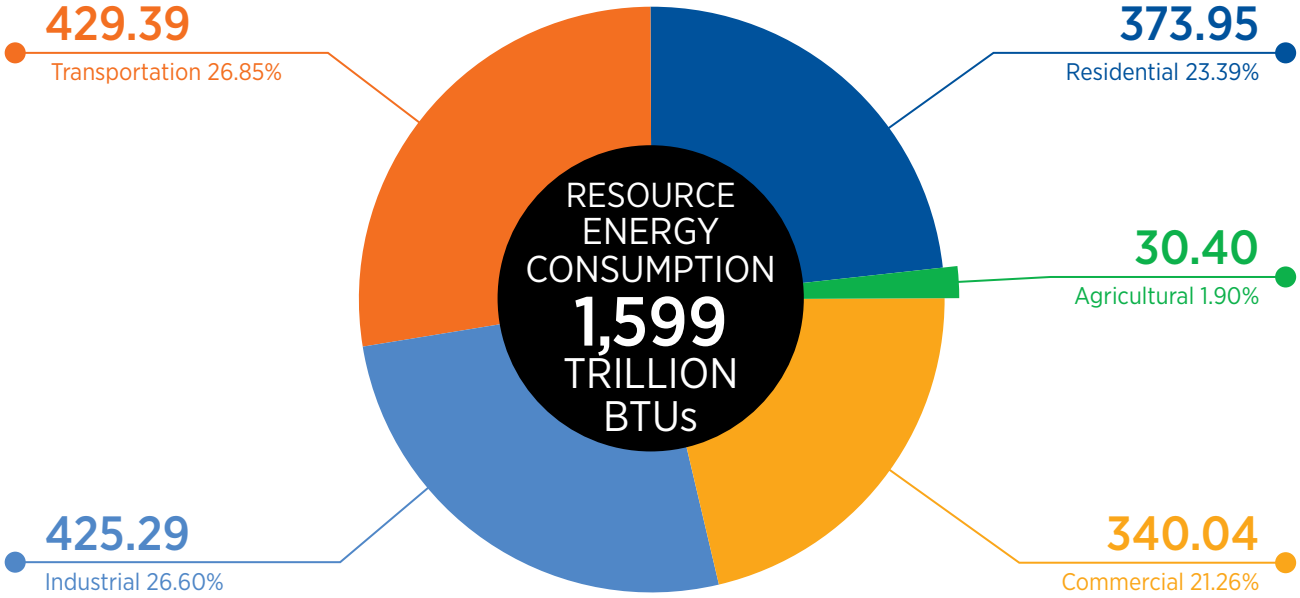
1975-2015 (Trillions of Btu)

Year	Agricultural[r]	Commercial[r]	Industrial[r]	Residential[r]	Transportation	Total[r]
1975	31.72	181.84	356.10	330.13	314.00	1,213.79
1976	32.33	192.96	370.59	335.05	333.00	1,263.93
1977	33.55	195.48	357.29	326.57	344.30	1,257.18
1978	34.72	204.45	382.10	340.26	359.80	1,321.33
1979	36.53	211.25	374.84	332.47	355.40	1,310.49
1980	37.54	198.28	351.68	328.69	329.20	1,245.39
1981	37.41	193.20	354.46	307.46	317.40	1,209.93
1982	38.37	186.09	329.71	319.03	303.96	1,177.14
1983	33.99	191.05	338.32	312.96	306.69	1,183.01
1984	36.68	218.67	353.27	309.03	313.18	1,230.82
1985	37.87	219.82	347.14	317.60	314.49	1,236.92
1986	37.06	215.96	347.04	315.93	322.80	1,238.79
1987	33.43	224.79	360.76	306.78	327.73	1,253.49
1988	32.53	245.78	378.03	340.94	343.15	1,340.43
1989	34.38	259.73	386.35	344.80	345.75	1,371.01
1990	29.04	241.80	416.85	357.54	347.29	1,392.52
1991	27.29	238.65	405.10	360.37	350.93	1,382.34
1992	27.27	235.27	413.05	349.85	361.27	1,386.71
1993	26.87	247.78	435.82	371.72	372.45	1,454.63
1994	27.49	254.73	458.10	373.14	379.56	1,493.02
1995	28.11	278.54	483.11	402.44	387.67	1,579.86
1996	28.00	284.87	473.32	408.27	397.73	1,592.20
1997	27.16	284.45	494.88	388.54	406.44	1,601.47
1998	25.89	286.41	493.18	368.32	417.34	1,591.13
1999	27.12	305.25	495.11	390.82	428.60	1,646.89
2000	26.22	309.97	507.08	399.62	423.98	1,666.88
2001	26.35	313.68	484.15	400.00	424.76	1,648.94
2002	29.02	316.01	475.04	410.22	437.54	1,667.82
2003	25.52	322.01	482.00	415.50	438.80	1,683.83
2004	24.63	308.42	510.02	407.07	447.35	1,697.49
2005	25.45	343.78	471.69	412.80	428.89	1,682.60
2006	28.13	328.45	444.33	381.65	424.31	1,606.87
2007	29.00	350.06	466.95	407.13	429.03	1,682.17
2008	31.13	365.22	456.06	413.26	418.21	1,683.88
2009	33.29	344.10	411.75	393.42	402.75	1,585.31
2010	29.84	338.97	424.86	388.97	419.37	1,602.02
2011	27.72	337.82	423.47	385.06	412.70	1,586.77
2012[r]	29.93	325.98	412.05	360.62	406.78	1,535.35
2013	30.83	354.74	428.91	403.33	397.75	1,615.56
2014	32.86	355.79	433.06	406.41	428.31	1,656.44
2015	30.40	340.04	425.29	373.95	429.39	1,599.07

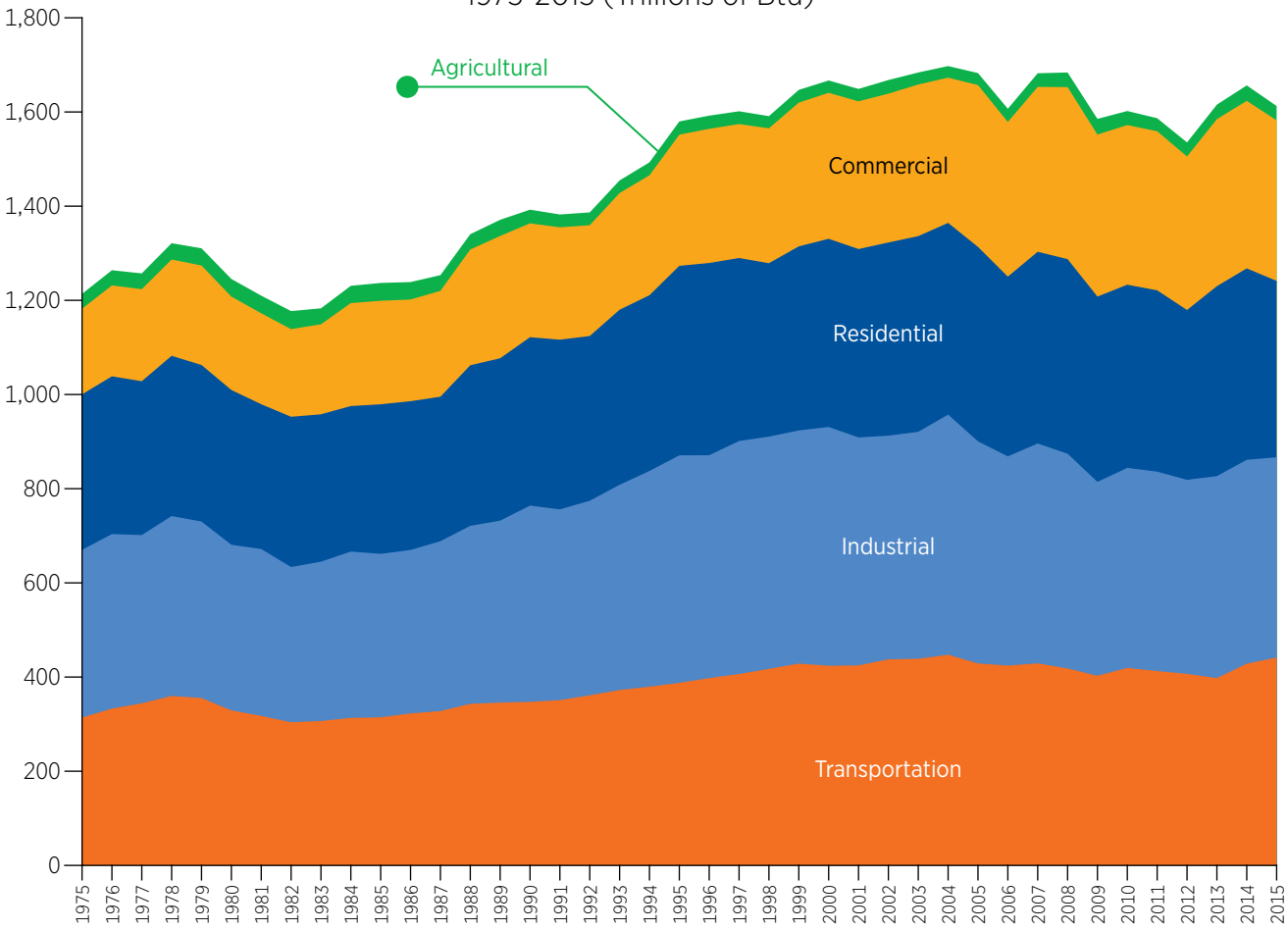
r Revised.

Source: See Electric Power Generation; Wisconsin Expenditures for Agricultural Energy, Commercial Energy, Industrial Energy, Residential Energy, Transportation Energy, by Type of Fuel.

Wisconsin Resource Energy Consumption, by Economic Sector
2015 (Trillions of Btu and Percent of Total)



Wisconsin Resource Energy Consumption, by Economic Sector
1975-2015 (Trillions of Btu)



Wisconsin End-Use Energy Consumption, by Type of Fuel

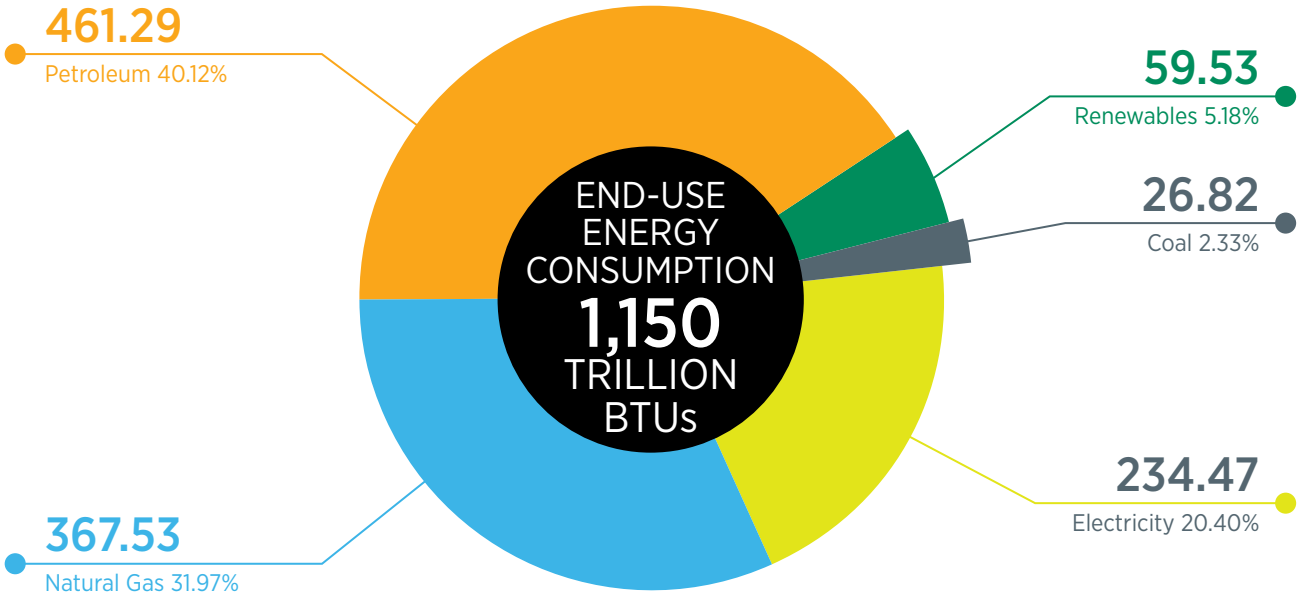
1975-2015 (Trillions of Btu)

Year	Coal	Electricity	Natural Gas[r]	Petroleum[r]	Renewables[r]	Total
1975	51.80	106.74	348.53	467.20	12.34	986.61
1976	54.90	112.43	349.71	492.60	14.15	1,023.79
1977	54.30	117.90	317.09	507.80	15.26	1,012.35
1978	51.20	124.04	345.81	513.90	17.54	1,052.49
1979	53.40	127.66	347.84	492.70	16.66	1,038.26
1980	53.90	128.82	329.89	449.60	16.25	978.46
1981	53.60	130.02	311.30	423.30	17.02	935.24
1982	53.60	129.52	307.02	401.66	16.16	907.96
1983	56.30	134.59	295.03	398.55	17.75	902.23
1984	57.30	139.77	302.32	421.86	19.48	940.72
1985	56.72	142.41	302.84	414.61	18.53	935.11
1986	56.65	145.80	284.52	419.15	18.76	924.87
1987	54.57	153.05	275.84	417.76	18.54	919.76
1988	56.49	162.86	311.27	437.73	18.57	986.92
1989	56.51	165.11	326.03	445.41	20.27	1,013.32
1990	56.92	167.91	304.03	436.12	21.79	986.76
1991	55.21	174.17	326.59	433.87	22.24	1,012.09
1992	56.32	173.81	327.49	441.11	21.03	1,019.75
1993	57.48	181.42	344.38	460.45	21.20	1,064.93
1994	62.65	189.12	345.82	466.64	21.02	1,085.25
1995	51.26	197.84	371.14	465.08	19.87	1,105.19
1996	48.06	200.49	396.40	481.30	21.05	1,147.30
1997	48.11	205.10	384.49	487.43	21.17	1,146.30
1998	46.91	211.81	343.09	488.30	22.39	1,112.51
1999	45.92	216.89	359.41	506.07	21.52	1,149.80
2000	48.02	222.34	372.00	495.09	23.31	1,160.75
2001	50.31	222.59	337.92	496.98	22.48	1,130.27
2002	51.34	228.67	363.48	505.89	23.80	1,173.18
2003	50.49	229.50	369.99	509.64	25.08	1,184.70
2004	51.85	232.00	361.23	516.93	26.57	1,188.59
2005	50.01	240.06	353.68	495.63	25.86	1,165.23
2006	51.57	238.30	330.01	490.10	28.90	1,138.88
2007	50.50	243.35	347.23	493.58	34.64	1,169.30
2008	48.24	239.33	374.31	473.72	40.38	1,175.98
2009	43.10	226.24	351.71	448.95	42.35	1,112.35
2010	44.34	234.65	332.16	451.93	46.68	1,109.77
2011	42.81	234.17	350.71	445.88	46.44	1,120.00
2012	36.46	234.88	321.74	433.39	52.18	1,078.66
2013	32.27	235.92	387.28	430.19	59.30	1,144.95
2014	33.16	237.19	411.58	466.69	58.10	1,206.71
2015	26.82	234.47	367.53	461.29	59.53	1,149.63

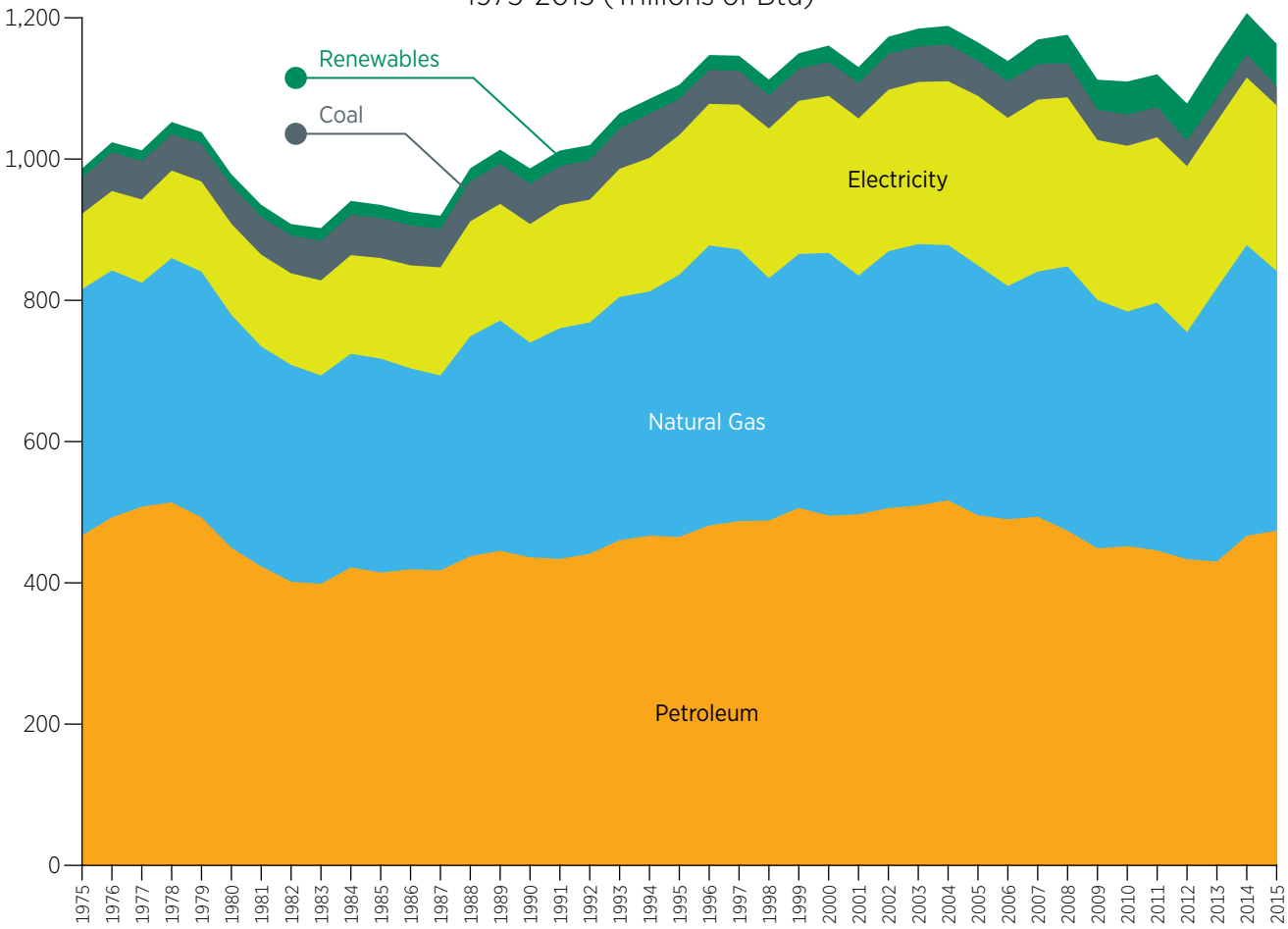
r Revised.

Source: See Energy Use & Prices by Sector; Renewable Energy; Electric Power Generation.

Wisconsin End-Use Energy Consumption, by Type of Fuel
2015 (Trillions of Btu and Percent of Total)



Wisconsin End-Use Energy Consumption, by Type of Fuel
1975-2015 (Trillions of Btu)



Wisconsin End-Use Energy Consumption, by Economic Sector

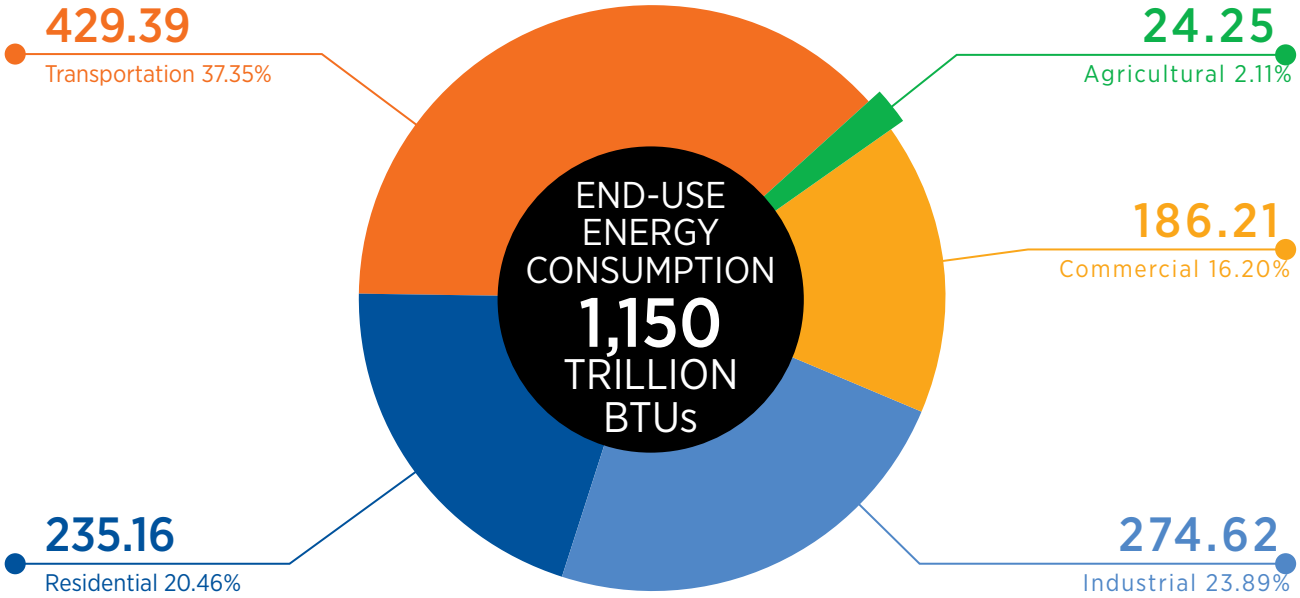
1975-2015 (Trillions of Btu)

Year	Agricultural[r]	Commercial[r]	Industrial[r]	Residential[r]	Transportation	Total[r]
1975	22.93	120.45	278.23	251.01	314.00	986.61
1976	22.77	129.10	285.56	253.36	333.00	1,023.79
1977	23.80	127.39	272.63	244.24	344.30	1,012.35
1978	23.96	127.57	289.75	251.41	359.80	1,052.49
1979	25.41	132.66	281.32	243.47	355.40	1,038.26
1980	26.65	118.77	263.64	240.20	329.20	978.46
1981	26.27	111.75	261.85	217.96	317.40	935.24
1982	26.65	105.29	242.53	229.54	303.96	907.96
1983	22.72	107.27	245.83	219.71	306.69	902.23
1984	25.12	131.02	255.29	216.12	313.18	940.72
1985	25.25	127.36	246.31	221.71	314.49	935.11
1986	24.52	118.77	242.11	216.68	322.80	924.87
1987	21.25	118.68	248.53	203.56	327.73	919.76
1988	20.20	133.06	259.27	231.25	343.15	986.92
1989	22.15	144.95	263.66	236.82	345.75	1,013.32
1990	19.80	131.22	266.05	222.40	347.29	986.76
1991	19.33	137.10	270.24	234.50	350.93	1,012.09
1992	19.59	134.90	273.87	230.13	361.27	1,019.75
1993	19.08	142.41	286.64	244.35	372.45	1,064.93
1994	19.50	144.07	298.94	243.18	379.56	1,085.25
1995	19.27	150.46	297.95	249.84	387.67	1,105.19
1996	19.70	162.28	300.84	266.76	397.73	1,147.30
1997	18.96	159.62	312.94	248.34	406.44	1,146.30
1998	17.96	155.82	300.28	221.11	417.34	1,112.51
1999	18.79	161.46	302.67	238.27	428.60	1,149.80
2000	18.18	161.93	311.87	244.79	423.98	1,160.75
2001	17.83	159.16	290.90	237.62	424.76	1,130.27
2002	19.08	169.16	296.47	250.93	437.54	1,173.18
2003	18.04	173.13	297.81	256.92	438.80	1,184.70
2004	17.55	163.56	311.72	248.42	447.35	1,188.59
2005	18.18	178.26	292.30	247.60	428.89	1,165.23
2006	21.63	175.92	281.35	235.67	424.31	1,138.88
2007	23.01	181.09	289.98	246.20	429.03	1,169.30
2008	24.61	195.20	283.88	254.08	418.21	1,175.98
2009	27.07	183.74	258.21	240.58	402.75	1,112.35
2010	23.23	174.28	263.57	229.31	419.37	1,109.77
2011	22.13	180.98	269.82	234.37	412.70	1,120.00
2012[r]	23.68	171.80	261.95	214.45	406.78	1,078.66
2013	24.08	193.67	276.55	252.90	397.75	1,144.95
2014	25.78	202.05	286.05	264.52	428.31	1,206.71
2015	24.25	186.21	274.62	235.16	429.39	1,149.63

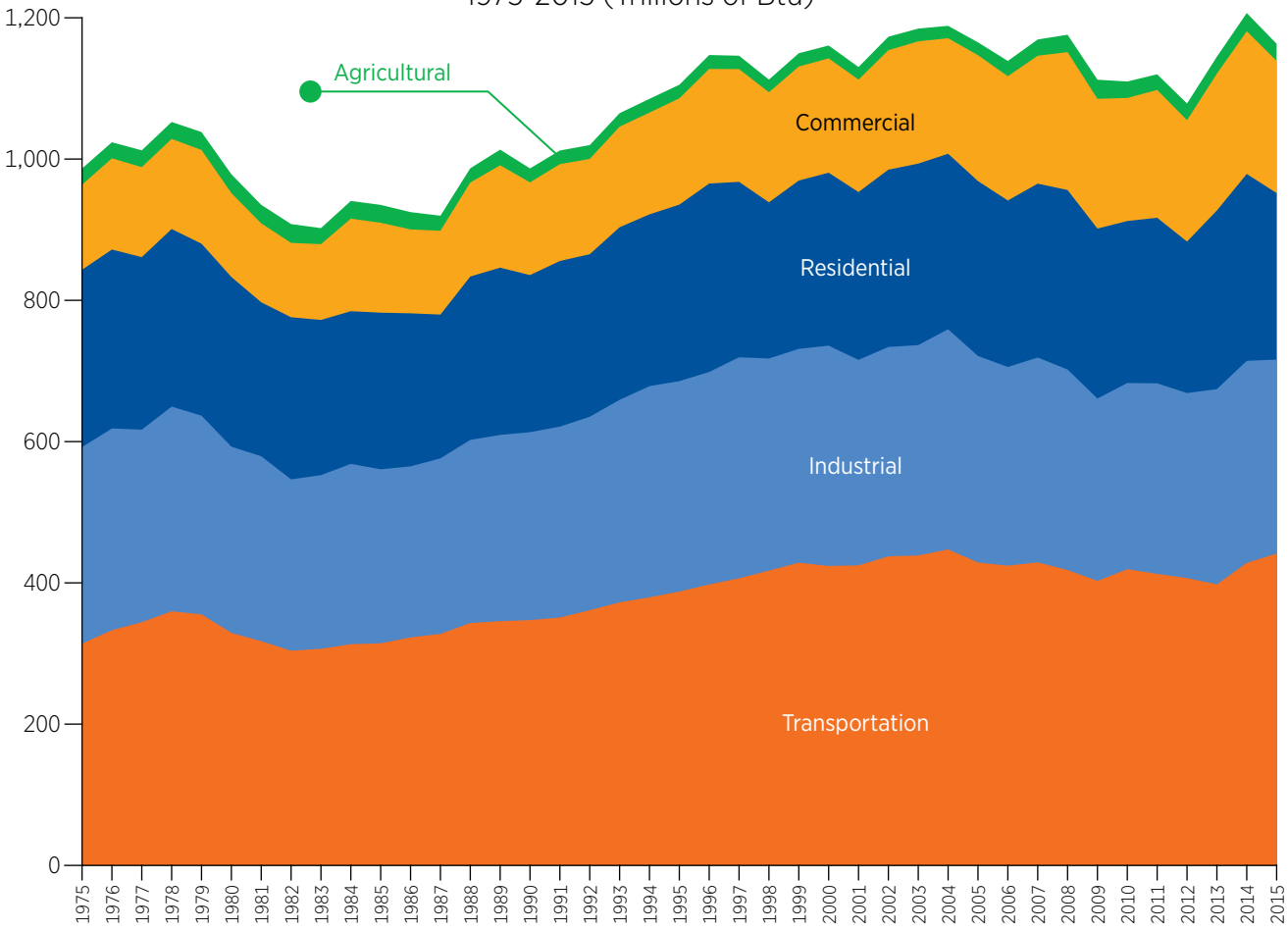
r Revised.

Source: See Wisconsin Expenditures for Agricultural Energy, Commercial Energy, Industrial Energy, Residential Energy, Transportation Energy, by Type of Fuel; Energy Use for Electricity Generation.

Wisconsin End-Use Energy Consumption, by Economic Sector
2015 (Trillions of Btu and Percent of Total)



Wisconsin End-Use Energy Consumption, by Economic Sector
1975-2015 (Trillions of Btu)



Wisconsin Energy Use for Electricity Generation, by Type of Fuel

1975-2015 (Trillions of Btu)

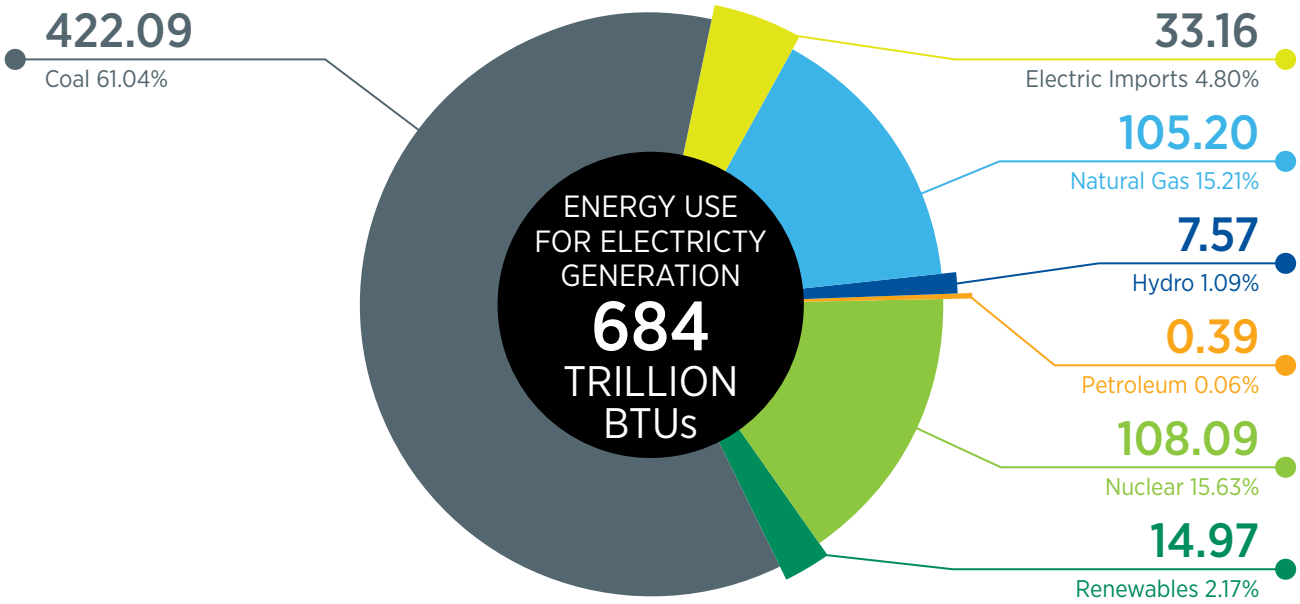
Year	Coal	Electric Imports[a]	Hydro[r]	Natural Gas	Nuclear	Petroleum	Renewables	Total
1975	210.50	-20.40	5.06	19.80	111.15	7.80	5.06	333.92
1976	233.70	-22.36	4.14	12.70	115.80	8.60	4.14	352.57
1977	239.10	-16.25	4.78	5.90	118.21	11.00	4.78	362.74
1978	239.80	-3.17	6.20	7.90	126.55	15.60	6.20	392.89
1979	256.90	-4.17	6.11	21.00	112.35	7.70	6.11	399.90
1980	270.70	-6.46	5.56	14.10	107.05	4.80	5.56	395.75
1981	270.00	7.27	5.72	7.70	111.72	2.30	5.72	404.71
1982	266.00	9.20	6.59	4.30	110.91	1.71	6.59	398.70
1983	298.60	4.50	6.95	3.40	100.45	1.46	6.95	415.37
1984	311.90	-7.32	6.30	1.90	116.02	1.06	6.30	429.87
1985	317.70	-1.80	6.98	1.40	118.56	1.37	6.98	444.22
1986	327.40	1.55	6.58	1.80	120.93	1.47	6.58	459.72
1987	346.20	11.24	4.02	2.20	122.13	1.00	4.02	486.78
1988	351.90	32.18	3.77	2.70	123.81	1.20	4.57	516.36
1989	350.70	47.11	4.07	2.10	116.99	1.04	4.87	522.80
1990	354.50	87.67	6.11	2.40	121.22	0.97	6.91	573.67
1991	369.60	43.90	7.75	2.70	118.70	0.97	8.55	544.42
1992	357.70	50.41	7.25	2.60	121.04	0.97	8.05	540.76
1993	374.20	60.94	7.48	3.10	123.82	0.97	8.08	571.12
1994	392.80	67.51	6.53	4.00	124.37	0.97	7.23	596.89
1995	412.40	123.00	7.16	10.10	118.48	0.83	7.71	672.51
1996	438.80	80.15	8.20	7.40	109.31	0.94	8.80	645.39
1997	462.00	130.33	7.45	15.95	42.29	1.55	8.15	660.27
1998	448.90	107.72	5.18	24.65	101.49	1.81	5.89	690.44
1999	459.60	99.93	5.92	21.52	124.15	1.99	6.80	713.98
2000	471.38	103.31	5.97	21.43	123.76	1.58	7.02	728.47
2001	471.62	113.02	6.44	22.56	124.28	2.16	7.63	741.26
2002	457.13	100.39	7.79	20.69	134.45	1.50	9.15	723.31
2003	476.55	86.91	5.54	24.32	131.98	1.77	7.09	728.63
2004	485.39	95.95	5.97	21.44	128.39	1.81	7.92	740.90
2005	481.71	125.40	5.12	59.38	81.80	1.89	7.25	757.42
2006	464.11	56.63	4.94	44.46	132.13	1.54	7.42	706.29
2007	465.40	88.35	4.48	54.92	139.43	1.88	6.23	756.22
2008	492.59	72.27	4.87	41.71	131.27	1.07	8.32	747.22
2009	441.35	68.18	4.62	41.58	136.98	0.57	10.54	699.19
2010	478.69	48.63	6.92	43.07	143.43	0.51	12.57	726.90
2011	448.01	65.60	6.99	48.40	124.85	0.50	13.59	700.94
2012	377.44	106.43	4.97	88.63	105.66	0.58	12.83	691.58
2013	463.09	58.51	6.39	62.70	107.37	0.41	14.44	706.52
2014	416.08	89.81	8.03	61.70	102.03	0.73	16.56	686.91
2015	422.09	33.16	7.57	105.20	108.09	0.39	14.97	683.91

a Reflects the resource energy assumed to be used in other states or Canada to produce electricity imported into Wisconsin, estimated at 11,300 Btu/kWh. Negative values may indicate out-of-state exports and/or line losses.

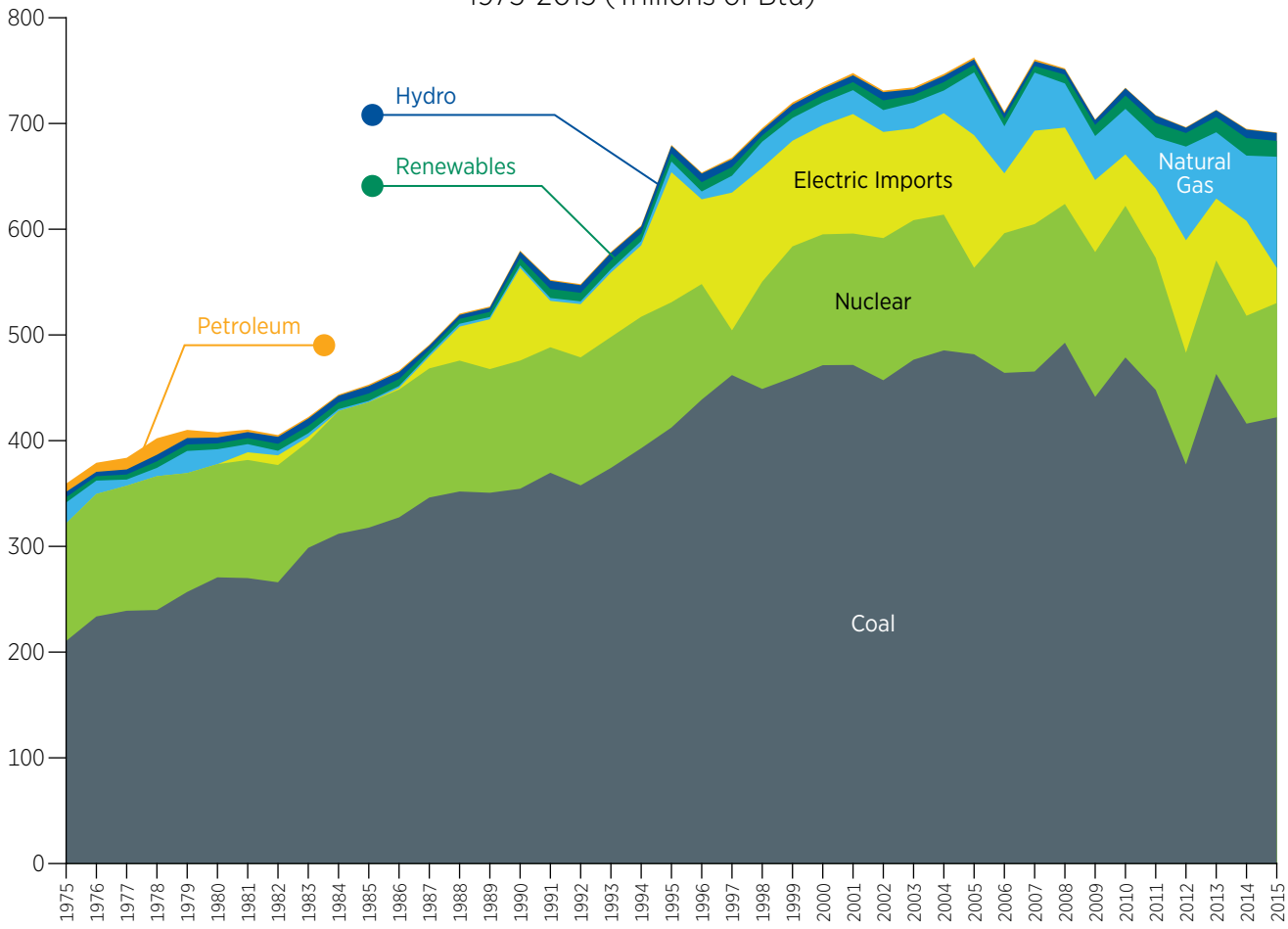
r Revised.

Source: See Energy Use & Prices by Sector; Electric Power Generation; Renewable Energy.

Wisconsin Energy Use for Electricity Generation, by Type of Fuel
2015 (Trillions of Btu and Percent of Total)



Wisconsin Energy Use for Electricity Generation, by Type of Fuel
1975-2015 (Trillions of Btu)



Total Energy Expenditures

As a net energy importer, Wisconsin receives nearly all of its fuel from sources outside state borders. As Wisconsinites begin to use more energy to power their daily lives, the state's total energy expenditures increase. As a result, the amount of money sent out of state to meet energy demand increases. Energy expenditures account for **end-use** energy consumption (money spent on energy by each economic sector) and **resource** energy consumption (money spent by all of Wisconsin on each fuel type). Since 1975, total resource energy expenditures by the state have increased, growing from $2,116.98 million in 1975 to $12,418.57 million in 2015.

From 2014 to 2015, Wisconsin's overall end-use energy expenditures dropped from $24,241.96 million to $19,040.55 million. This drop of $5,201.41 million, or 21.5 percent, is largely accounted for by a $3,981.36 million decrease in petroleum expenditures, though all fuel types saw some decrease in expenditure. Petroleum expenditures increased rapidly after 2003, but have fluctuated considerably from year to year since then.

Every sector spends varying amounts on every fuel type, depending on its needs. The **agricultural** and **transportation** sectors spend a small amount on natural gas ($8.23 and $23.67 million respectively) in comparison to the **residential** sector's $1,079.12 million, as natural gas is the primary fuel for home heating in Wisconsin. The **transportation** sector consistently spends the most on **petroleum**, as 43 percent of all energy in Wisconsin is purchased for transportation needs. Motor gasoline accounts for roughly 74 percent of all petroleum products used by the transportation sector, with expenditures falling from $8,402.13 in 2014 to $6,065.34 million in 2015. The agricultural sector saw a similar drop in total energy expenditures in 2015, from $649.77 million to $443.09 million; the bulk of the decrease can be accounted for by a more than a 50 percent drop in diesel expenditures.

Decreases in petroleum and natural gas expenditures may be attributable in part to recent technological advances in drilling. These advances have lowered the cost of petroleum and natural gas considerably, increasing their abundance on the market and in reserves.

Renewable energy expenditures are not included in this section except where imported electricity is generated by renewable sources.

Resource Energy Expenditures

2013	Percent Change from Previous Year	Percent of Wisconsin's Resource Energy Expenditures
Overall	▼ -3.2%	
BY FUEL		
Coal Consumption	▲ 15.3%	70.0%
Electricity Imports	▼ -43.9%	19.0%
Natural Gas Consumption	▲ 7.0%	7.6%
Petroleum Consumption	▼ -3.9%	3.5%

2014		
Overall	▲ 11.1%	
BY FUEL		
Coal Consumption	▼ -9.2%	66.5%
Electricity Imports	▲ 54.8%	22.6%
Natural Gas Consumption	▲ 31.9%	6.2%
Petroleum Consumption	▲ 5.6%	4.8%

2015		
Overall	▼ -29.5%	
BY FUEL		
Coal Consumption	▼ -2.4%	66.3%
Electricity Imports	▼ -62.4%	22.5%
Natural Gas Consumption	▼ -29.6%	8.6%
Petroleum Consumption	▼ -29.6%	2.6%

End-Use Energy Expenditures

2013	Percent Change from Previous Year	Percent of Wisconsin's End-Use Energy Expenditures
Overall	▲ 0.6%	
BY FUEL		
Coal Consumption	▼ -13.9%	0.6%
Electricity Imports	▲ 2.6%	32.2%
Natural Gas Consumption	▲ 17.0%	12.2%
Petroleum Consumption	▼ -3.3%	55.1%
BY ECONOMIC SECTOR		
Agricultural	▲ 0.5%	2.6%
Commercial	▲ 6.1%	14.7%
Industrial	▲ 2.7%	11.9%
Residential	▲ 8.6%	21.4%
Transportation	▼ -4.3%	49.5%

2014		
Overall	▲ 7.5%	
BY FUEL		
Coal Consumption	▲ 2.0%	0.5%
Electricity Imports	▲ 1.5%	30.4%
Natural Gas Consumption	▲ 33.6%	15.1%
Petroleum Consumption	▲ 5.3%	53.9%
BY ECONOMIC SECTOR		
Agricultural	▲ 10.1%	2.7%
Commercial	▲ 7.9%	14.7%
Industrial	▲ 15.5%	12.8%
Residential	▲ 12.8%	22.4%
Transportation	▲ 3.1%	47.4%

2015		
Overall	-21.5%	
BY FUEL		
Coal Consumption	▼ -17.7%	0.6%
Electricity Imports	▲ 0.0%	38.7%
Natural Gas Consumption	▼ -32.6%	13.0%
Petroleum Consumption	▼ -30.5%	47.7%
BY ECONOMIC SECTOR		
Agricultural	▼ -31.8%	2.3%
Commercial	▼ -9.7%	16.9%
Industrial	▼ -14.2%	14.0%
Residential	▼ -16.1%	23.9%
Transportation	▼ -29.0%	42.9%

Wisconsin End-Use Energy Expenditures, by Type of Fuel

1975-2015 (Millions of Dollars)

Year	Coal	Electricity	Natural Gas	Petroleum[a,b]	Total[c]
1975	86.20	935.46	457.05	1,728.04	3,206.75
1976	76.83	1,057.35	585.12	1,887.94	3,607.24
1977	79.70	1,188.44	658.33	2,123.30	4,049.76
1978	82.03	1,337.29	797.39	2,310.46	4,527.18
1979	94.13	1,492.07	930.04	2,975.43	5,491.66
1980	88.98	1,709.71	1,133.84	3,729.14	6,661.67
1981	118.73	1,958.49	1,309.71	4,037.23	7,424.16
1982	121.89	2,224.57	1,513.81	3,740.96	7,601.23
1983	124.13	2,367.46	1,606.22	3,558.14	7,655.94
1984	124.31	2,360.98	1,613.29	3,636.60	7,735.18
1985	121.59	2,393.94	1,616.84	3,594.86	7,727.23
1986	115.71	2,466.39	1,453.33	2,745.41	6,780.83
1987	104.42	2,506.92	1,382.30	2,838.37	6,832.01
1988	111.43	2,627.29	1,516.75	2,994.40	7,249.87
1989	105.86	2,634.88	1,502.60	3,192.62	7,435.97
1990	102.95	2,641.68	1,381.88	3,666.96	7,793.47
1991	99.03	2,782.60	1,433.36	3,577.63	7,892.64
1992	98.70	2,793.51	1,505.82	3,545.13	7,943.15
1993	98.93	2,936.72	1,691.42	3,707.38	8,434.45
1994	107.74	3,023.52	1,642.92	3,850.32	8,624.49
1995	85.64	3,107.77	1,607.33	3,909.58	8,710.32
1996	81.26	3,084.63	1,867.66	4,455.29	9,488.85
1997	80.34	3,138.04	1,992.03	4,474.34	9,684.74
1998	78.31	3,376.96	1,632.39	3,906.94	8,994.60
1999	74.32	3,516.14	1,776.37	4,372.49	9,739.32
2000	80.07	3,718.88	2,366.32	5,684.33	11,849.61
2001	90.92	3,963.42	2,671.93	5,624.43	12,350.70
2002	101.50	4,209.82	2,250.66	5,353.35	11,915.32
2003	98.75	4,469.23	3,003.60	6,172.68	13,744.25
2004	109.17	4,677.51	3,206.25	7,340.70	15,333.63
2005	128.31	5,266.31	3,763.66	8,966.84	18,125.13
2006	146.18	5,676.27	3,485.47	10,047.18	19,355.10
2007	151.71	6,046.91	3,676.41	11,093.76	20,968.80
2008	155.83	6,314.83	4,275.54	12,769.62	23,515.81
2009	151.71	6,216.78	3,207.32	8,605.27	18,181.08
2010	158.31	6,724.75	2,911.19	10,289.73	20,083.97
2011	158.83	7,004.62	2,875.28	12,760.83	22,799.56
2012	146.57	7,079.85	2,343.33	12,840.56	22,410.30
2013	126.16	7,266.62	2,741.46	12,412.72	22,546.96
2014	128.65	7,377.30	3,663.56	13,072.45	24,241.96
2015	105.94	7,374.94	2,468.58	9,091.09	19,040.55

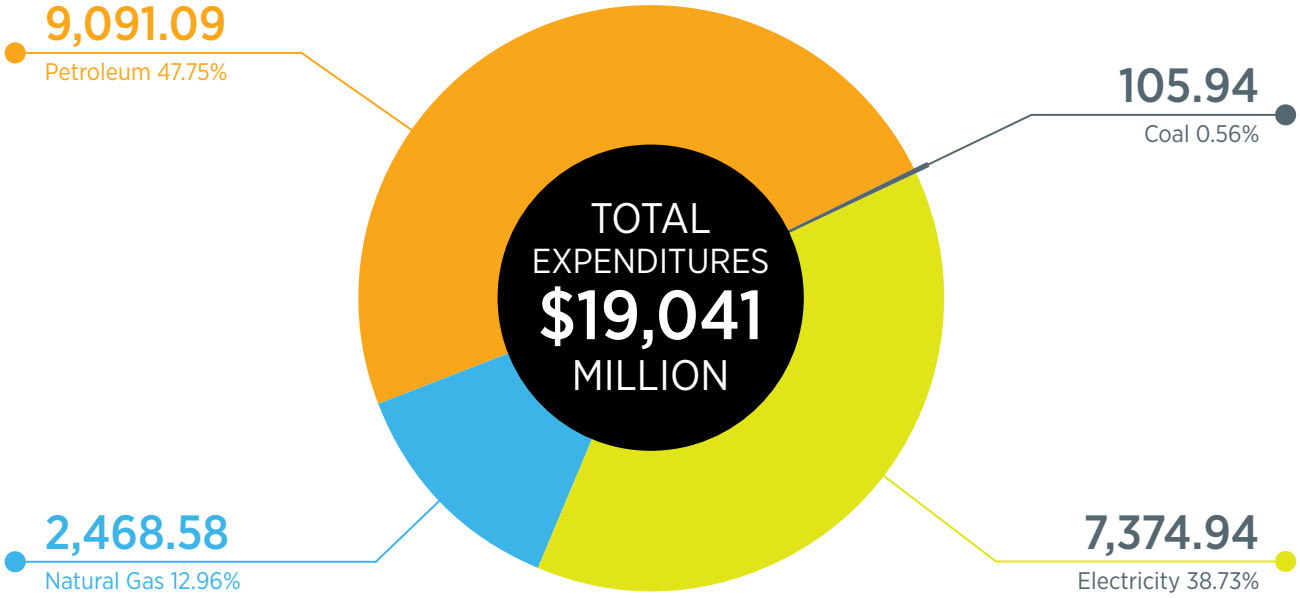
a Distillate oil and residual fuel oil price for Wisconsin not available beginning in 2009 and 2011, respectively, due to reports being suspended as part of U.S. budget sequester and publishing policies of the U.S. Energy Information Administration.

b Gasoline and Diesel fuel expenditures for Transportation historically revised.

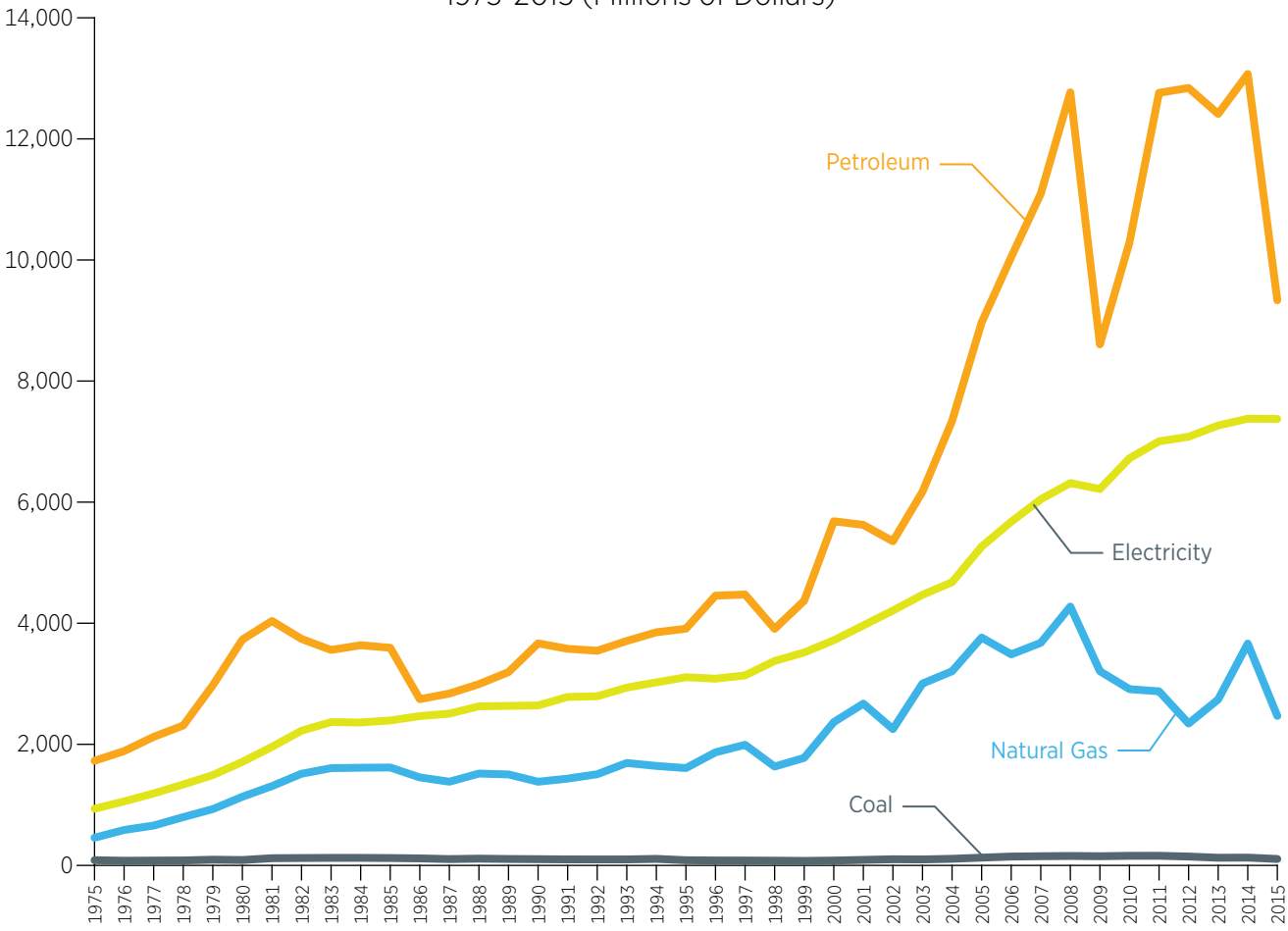
c Does not include renewable energy, except renewable fuels used in electricity production.

Source: See Wisconsin Expenditures for Agricultural Energy, Commercial Energy, Industrial Energy, Residential Energy, Transportation Energy, by Type of Fuel.

Wisconsin End-Use Energy Expenditures, by Type of Fuel
2015 (Millions of Dollars and Percent of Total)



Wisconsin End-Use Energy Expenditures, by Type of Fuel
1975-2015 (Millions of Dollars)



Wisconsin End-Use Energy Expenditures, by Economic Sector

1975-2015 (Millions of Dollars)

Year	Agricultural[r]	Commercial[a]	Industrial[a]	Residential	Transportation[r]	Total[b]
1975	87.11	443.06	523.69	851.41	1,301.48	3,206.75
1976	89.32	509.59	630.84	956.30	1,421.19	3,607.24
1977	98.94	610.06	700.01	1,056.18	1,584.58	4,049.76
1978	103.52	680.13	809.81	1,157.68	1,776.04	4,527.18
1979	124.91	796.93	918.96	1,324.54	2,326.33	5,491.66
1980	160.62	881.91	1,021.96	1,606.01	2,991.17	6,661.67
1981	183.76	1,012.10	1,223.42	1,754.48	3,250.41	7,424.16
1982	194.01	1,076.86	1,256.17	2,044.88	3,029.32	7,601.23
1983	165.78	1,147.54	1,321.38	2,112.50	2,908.74	7,655.94
1984	180.62	1,288.55	1,320.54	2,056.15	2,889.31	7,735.18
1985	182.86	1,242.15	1,287.01	2,095.30	2,919.92	7,727.23
1986	151.43	1,184.16	1,234.21	1,979.89	2,231.13	6,780.83
1987	124.60	1,184.15	1,274.24	1,857.56	2,391.46	6,832.01
1988	115.37	1,267.55	1,294.81	2,043.62	2,528.52	7,249.87
1989	125.67	1,310.11	1,270.93	2,061.02	2,668.24	7,435.97
1990	105.85	1,173.66	1,265.72	2,156.36	3,091.88	7,793.47
1991	100.37	1,216.76	1,269.16	2,241.51	3,064.84	7,892.64
1992	99.88	1,227.76	1,322.32	2,212.24	3,080.95	7,943.15
1993	101.67	1,313.72	1,406.58	2,428.62	3,183.85	8,434.45
1994	102.26	1,318.15	1,432.48	2,424.35	3,347.26	8,624.49
1995	99.60	1,329.64	1,407.74	2,432.06	3,441.28	8,710.32
1996	115.86	1,422.82	1,483.44	2,624.88	3,841.84	9,488.85
1997	107.03	1,454.65	1,671.16	2,552.95	3,898.95	9,684.74
1998	91.27	1,430.82	1,622.65	2,355.34	3,494.52	8,994.60
1999	101.27	1,536.90	1,681.81	2,522.07	3,897.27	9,739.32
2000	127.82	1,745.22	2,013.01	2,932.27	5,031.29	11,849.61
2001	114.31	1,894.64	2,211.53	3,163.29	4,966.92	12,350.70
2002	138.28	1,901.67	1,950.65	3,143.35	4,781.38	11,915.32
2003	138.21	2,177.76	2,336.20	3,627.60	5,464.47	13,744.25
2004	145.39	2,208.77	2,636.13	3,813.57	6,529.77	15,333.63
2005	309.03	2,744.33	2,908.28	4,354.06	7,809.43	18,125.13
2006	411.42	2,893.20	2,880.50	4,459.51	8,710.47	19,355.10
2007	474.25	3,082.91	3,066.76	4,732.72	9,612.15	20,968.80
2008	572.19	3,446.06	3,272.39	5,165.76	11,059.41	23,515.81
2009	471.90	3,054.17	2,606.07	4,575.28	7,473.66	18,181.08
2010	472.44	3,070.94	2,670.77	4,648.50	9,221.32	20,083.97
2011	532.10	3,214.63	2,771.97	4,749.17	11,531.69	22,799.56
2012	587.66	3,115.79	2,613.75	4,435.82	11,657.28	22,410.30
2013	590.31	3,305.44	2,683.15	4,816.08	11,151.99	22,546.96
2014	649.77	3,566.57	3,098.92	5,430.18	11,496.52	24,241.96
2015	443.09	3,221.07	2,657.61	4,553.69	8,165.09	19,040.55

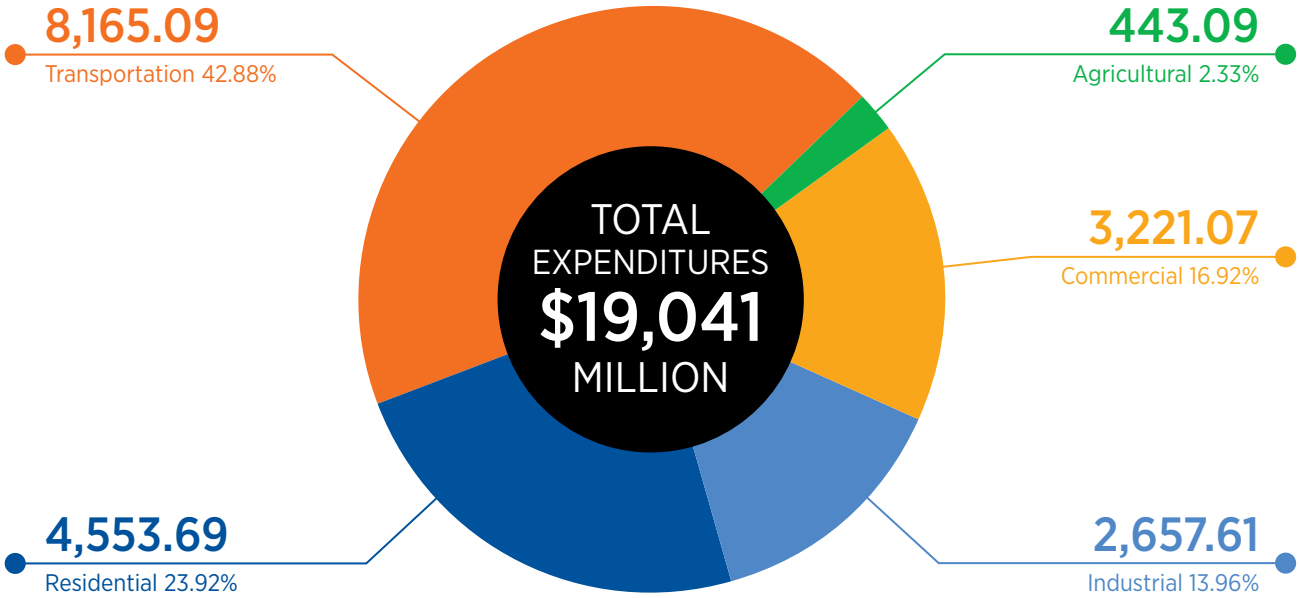
a Distillate oil price not available for Wisconsin beginning 2011; reports suspended as part of U.S. budget sequester. Residual fuel oil price not available for Wisconsin beginning 2009 due to publishing policies of the U.S. Energy Information Administration.

b Does not include renewable energy, except renewable fuels used in electricity production.

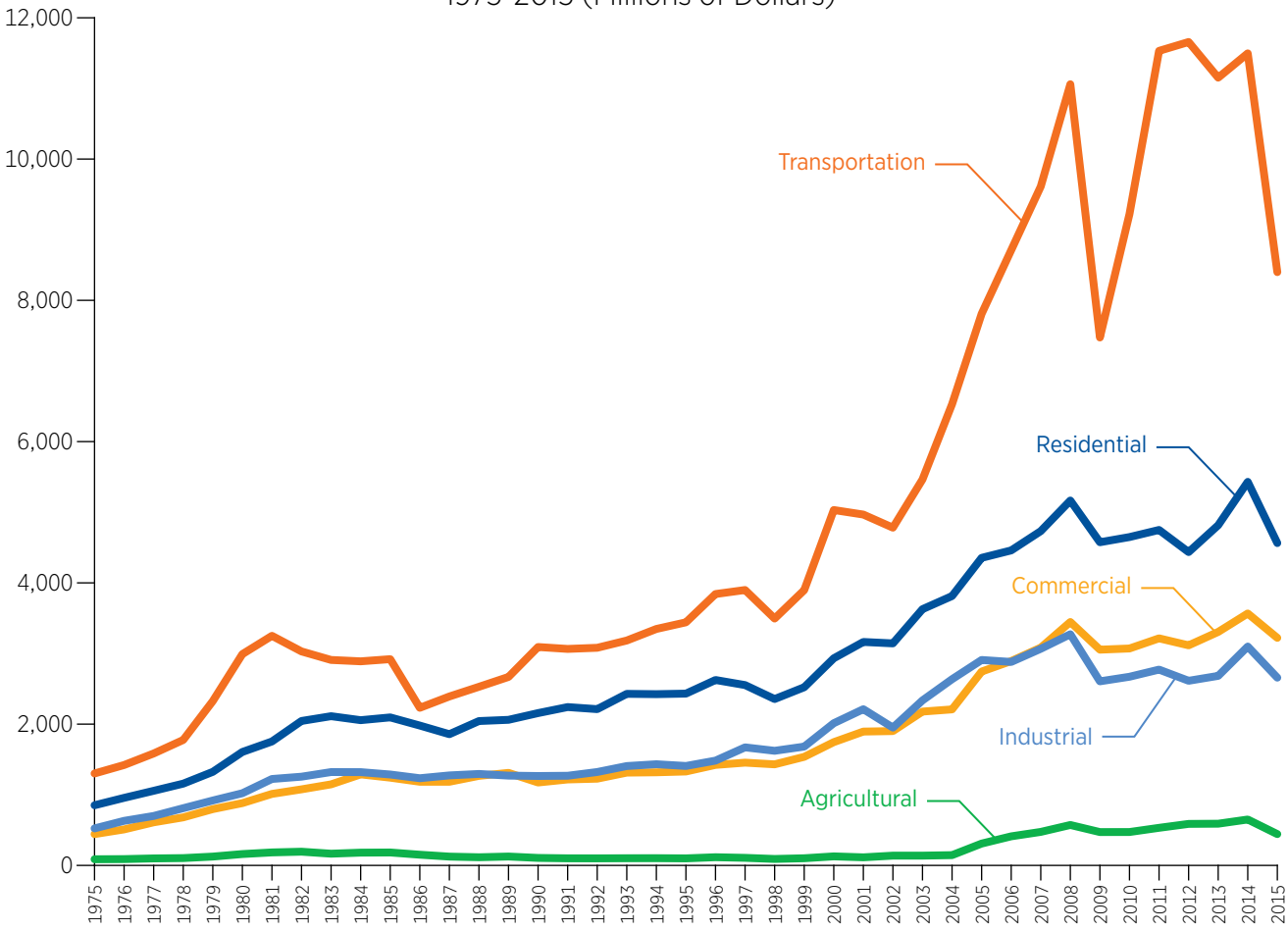
r Gasoline and Diesel fuel expenditures historically revised.

Source: See Wisconsin Expenditures for Agricultural Energy, Commercial Energy, Industrial Energy, Residential Energy, Transportation Energy, by Type of Fuel.

Wisconsin End-Use Energy Expenditures, by Economic Sector
2015 (Millions of Dollars and Percent of Total)



Wisconsin End-Use Energy Expenditures, by Economic Sector
1975-2015 (Millions of Dollars)



Wisconsin Resource Use Energy Expenditures, by Type of Fuel

1975-2015 (Millions of Dollars)

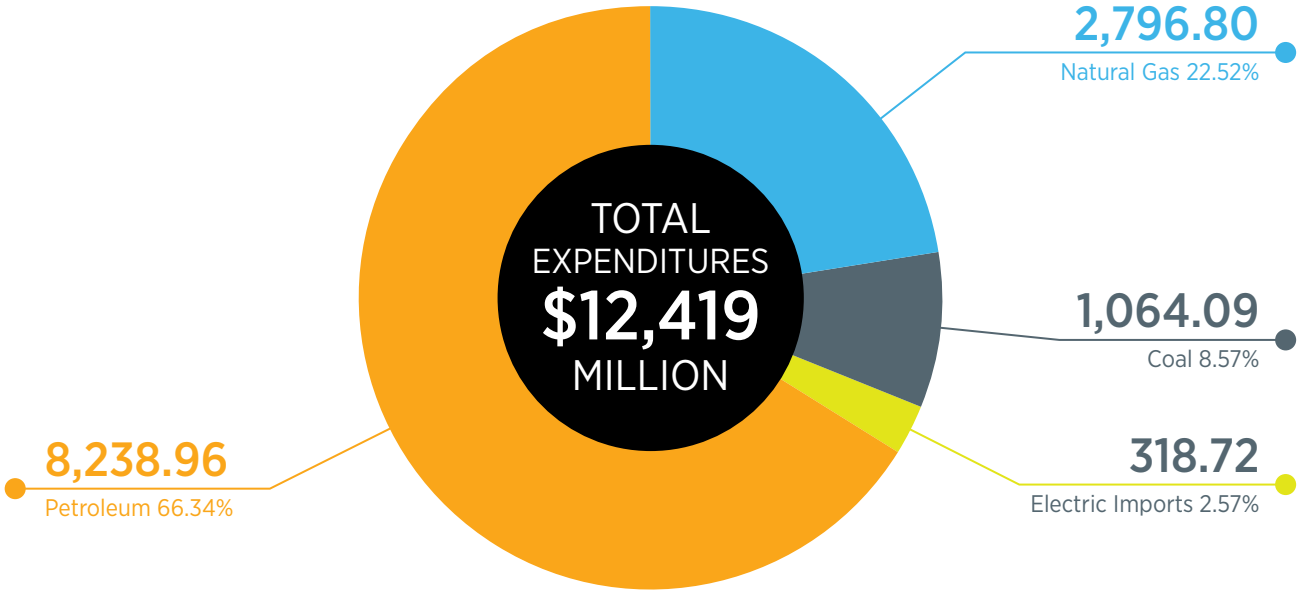
Year	Coal	Electric Imports[a,r]	Natural Gas[r]	Petroleum[r]	Total
1975	261.32	-50.96	473.29	1,642.67	2,326.33
1976	277.17	-60.49	600.23	1,781.17	2,598.08
1977	303.38	-47.30	668.65	1,972.41	2,897.14
1978	348.80	-9.84	812.95	2,155.93	3,307.84
1979	422.61	-14.01	977.29	2,795.34	4,181.24
1980	467.94	-24.91	1,175.29	3,583.63	5,201.95
1981	554.81	31.72	1,337.81	3,821.89	5,746.23
1982	575.98	45.55	1,531.79	3,618.91	5,772.23
1983	667.49	23.00	1,620.77	3,451.13	5,762.39
1984	686.60	-37.83	1,620.99	3,359.96	5,629.71
1985	662.96	-9.26	1,622.60	3,394.21	5,670.51
1986	697.20	8.04	1,460.06	2,588.49	4,753.78
1987	636.82	56.38	1,390.93	2,709.92	4,794.05
1988	624.49	159.30	1,525.53	2,855.54	5,164.86
1989	613.62	231.36	1,509.11	3,101.15	5,455.24
1990	584.57	425.40	1,388.91	3,553.18	5,952.06
1991	600.94	215.34	1,440.65	3,491.35	5,748.27
1992	573.74	250.84	1,512.06	3,476.95	5,813.59
1993	551.07	305.80	1,699.57	3,606.48	6,162.92
1994	582.42	336.35	1,653.44	3,795.88	6,368.08
1995	555.23	601.93	1,629.65	3,841.87	6,628.68
1996	545.87	384.66	1,889.94	4,347.72	7,168.18
1997	583.44	625.13	2,042.27	4,375.86	7,626.70
1998	558.19	538.58	1,697.45	3,812.97	6,607.19
1999	542.72	504.96	1,838.99	4,243.08	7,129.74
2000	560.51	538.16	2,461.48	5,455.91	9,016.07
2001	585.75	622.44	2,778.64	5,475.97	9,462.80
2002	603.99	568.90	2,325.13	5,210.62	8,708.64
2003	636.95	522.23	3,150.67	5,982.55	10,292.40
2004	671.95	601.47	3,349.56	7,125.88	11,748.86
2005	734.98	840.80	4,279.08	8,326.60	14,181.46
2006	828.17	413.45	3,808.70	9,326.54	14,376.86
2007	928.74	671.11	4,084.43	10,204.97	15,889.25
2008	1,111.45	582.19	4,655.53	11,352.73	17,701.89
2009	1,030.00	568.17	3,405.25	7,853.92	12,857.34
2010	1,168.35	422.91	3,051.34	9,417.79	14,060.39
2011	1,278.86	595.46	3,033.05	11,717.73	16,625.10
2012	1,041.11	974.50	2,817.49	11,538.23	16,371.33
2013	1,200.53	546.91	3,013.84	11,089.51	15,850.79
2014	1,089.80	846.70	3,974.23	11,707.07	17,617.80
2015	1,064.09	318.72	2,796.80	8,238.96	12,418.57

a Reflects the resource energy assumed to be used in other states or Canada to produce electricity imported into Wisconsin, estimated at 11,300 Btu/kWh. Negative values may indicate out-of-state exports and/or line losses.

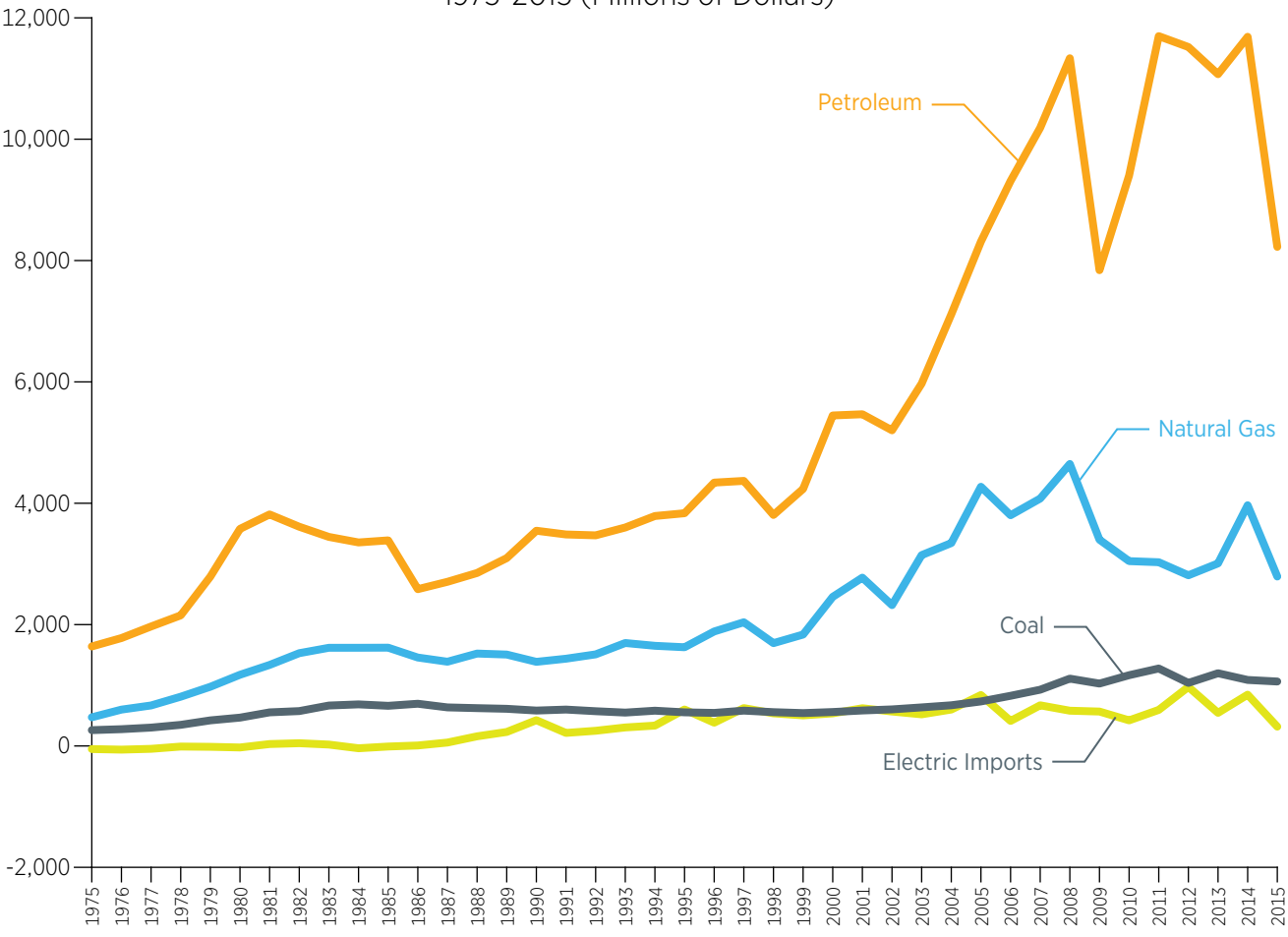
r Historically revised.

Source: See Energy Use & Prices by Sector; Electric Power Generation.

Wisconsin Resource Use Energy Expenditures, by Type of Fuel
2015 (Millions of Dollars and Percent of Total)



Wisconsin Resource Use Energy Expenditures, by Type of Fuel
1975-2015 (Millions of Dollars)



Wisconsin Expenditures for Agricultural Energy, by Type of Fuel

1975-2015 (Millions of Dollars)

Year	Motor Gasoline	Diesel[a]	Liquefied Petroleum Gas	Distillate and Kerosene[b]	Total Petroleum Expenditures	Electricity[r]	Natural Gas[c]	Total[d]
1975	30.14	18.75	10.85		59.73	27.38		87.11
1976	27.82	19.11	9.55		56.48	32.84		89.32
1977	27.37	23.09	13.02		63.48	35.46		98.94
1978	25.32	24.42	13.68		63.42	40.10		103.52
1979	31.32	31.25	16.06		78.63	46.28		124.91
1980	38.97	45.68	22.93		107.57	53.05		160.62
1981	39.13	57.13	26.86		123.12	60.64		183.76
1982	34.31	56.77	29.18		120.26	73.75		194.01
1983	26.55	50.46	17.12		94.13	71.65		165.78
1984	25.07	57.92	27.17		110.16	70.46		180.62
1985	22.46	57.27	27.85		107.58	75.28		182.86
1986	14.54	38.44	24.40		77.38	74.05		151.43
1987	12.50	29.75	13.62		55.87	68.73		124.60
1988	11.41	26.60	9.12		47.13	68.25		115.37
1989	11.30	27.87	19.22		58.39	67.27		125.67
1990	11.47	28.05	21.66		61.18	44.67		105.85
1991	9.79	26.81	19.51		56.11	44.27		100.37
1992	9.39	25.06	22.79		57.23	42.65		99.88
1993	8.04	27.50	23.81		59.35	42.32		101.67
1994	8.15	28.14	23.77		60.06	42.20		102.26
1995	7.98	27.69	23.11		58.77	40.83		99.60
1996	7.98	33.78	34.04		75.79	40.07		115.86
1997	7.61	28.83	30.35		66.78	40.24		107.03
1998	6.54	26.67	18.44		51.65	39.62		91.27
1999	7.21	31.42	21.21		59.83	41.43		101.27
2000	8.87	49.93	27.14		85.95	41.87		127.82
2001	8.64	29.98	28.93		67.55	46.76		114.31
2002	8.32	45.97	24.36		78.65	59.63		138.28
2003	9.72	53.47	27.51		90.70	47.52		138.21
2004	10.99	55.12	32.61		98.72	46.67		145.39
2005	72.52	130.74	36.53	3.63	243.42	53.27	12.34	309.03
2006	68.05	224.11	47.19	4.93	344.28	56.79	10.35	411.42
2007	84.87	269.01	53.60	4.62	412.09	51.32	10.85	474.25
2008[d]	77.69	320.54	71.13	6.25	475.61	58.61	37.96	572.19
2009	70.06	247.03	67.43	9.21	393.72	58.72	19.46	471.90
2010	69.30	270.67	53.12	3.94	397.03	63.25	12.16	472.44
2011	77.24	327.34	45.35	4.60	454.53	60.23	17.34	532.10
2012	81.31	384.11	40.03	2.91	508.36	69.21	10.08	587.66
2013	73.03	370.21	60.94	3.78	507.97	73.30	9.04	590.31
2014	83.23	390.74	72.66	6.17	552.79	83.70	13.28	649.77
2015	53.53	259.39	47.82	2.87	363.60	71.26	8.23	443.09

a Includes fuel oil and kerosene.

b Primarily distillate and kerosene, may include small amounts of coal and wood.

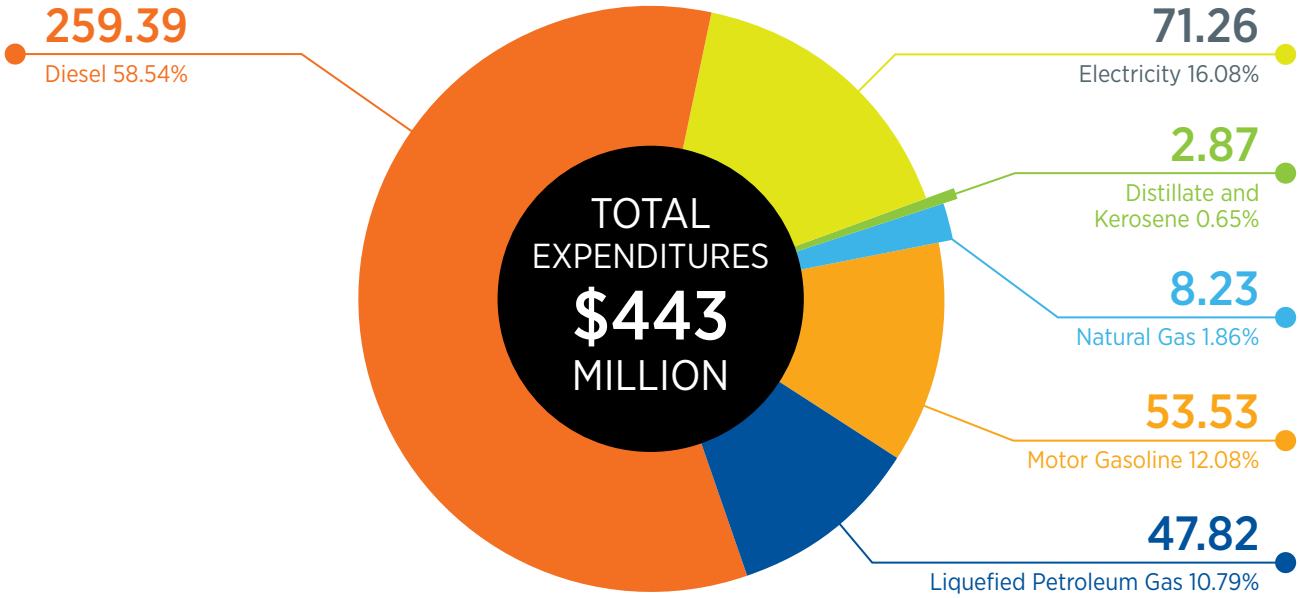
c Increase in expenditures in 2008 reflects the relatively high price of natural gas and inclusion of nurseries and greenhouses in the sample.

d Does not include renewable energy, except renewable fuels used in electricity production.

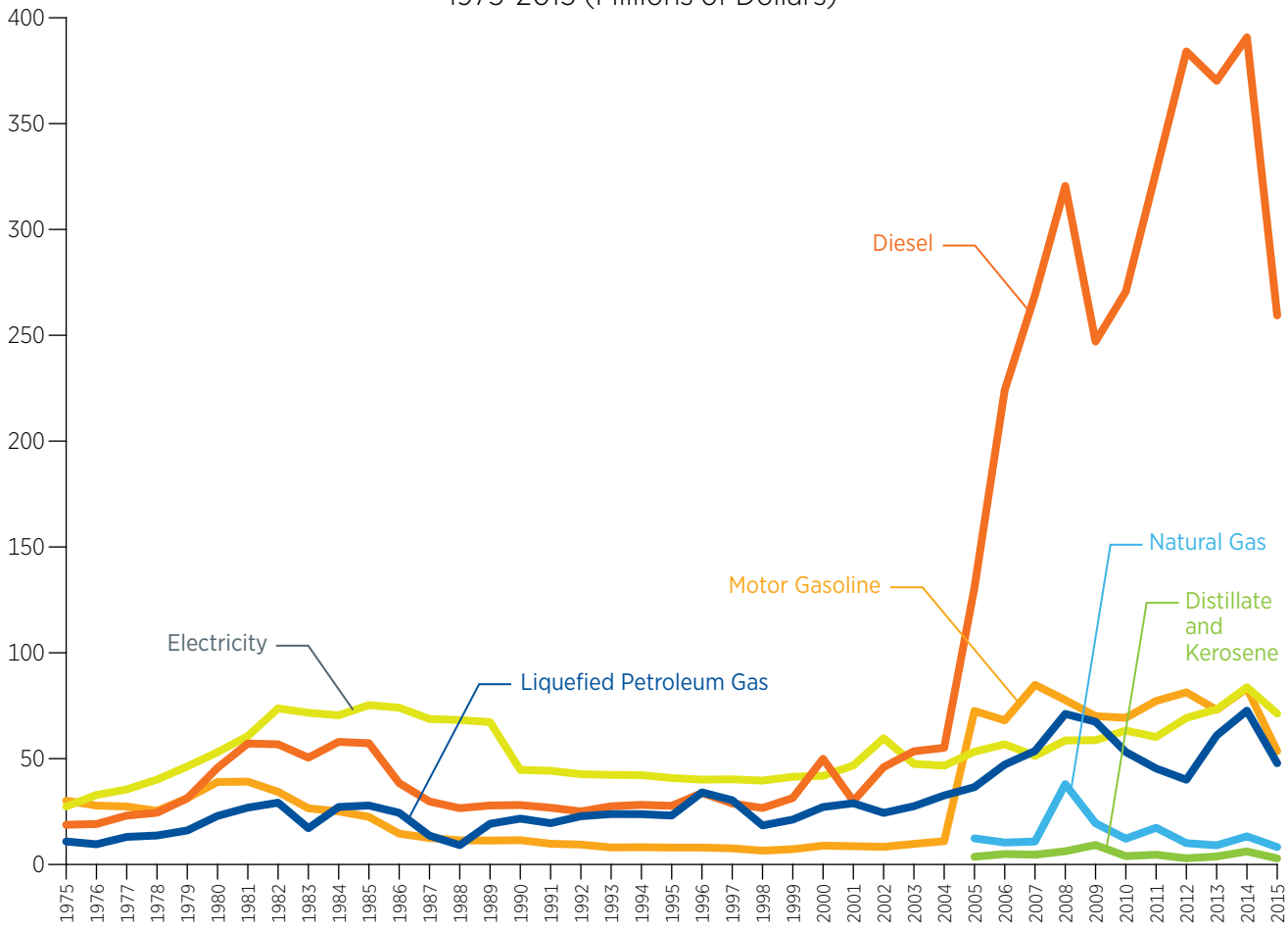
r Revised 1990-present.

Source: Personal communication, U.S. Department of Agriculture, National Agriculture Statistics Service (2005-2012), Value added by US agriculture (includes net farm income) (2013-2015) http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/value-added-years-by-state.aspx; U.S. Energy Information Administration, State Energy Data System Prices and Expenditures (1970-2015) http://www.eia.gov/state/seds/seds-data-complete.cfm#PricesExpenditures; Wisconsin Division of the American Automobile Association, Wisconsin Average Gas Prices (1970-2015) http://gasprices.aaa.com/?state=WI; Wisconsin Department of Revenue, Fuel Tax Statistical Report (1996-2012) https://www.revenue.wi.gov/Pages/ISE/Excise_Fuel-Home.aspx.

Wisconsin Expenditures for Agricultural Energy, by Type of Fuel
2015 (Millions of Dollars and Percent of Total)



Wisconsin Expenditures for Agricultural Energy, by Type of Fuel
1975-2015 (Millions of Dollars)



Wisconsin Expenditures for Commercial Energy, by Type of Fuel

1975-2015 (Millions of Dollars)

Year	Coal	Electricity	Natural Gas	Petroleum[a,b]	Total[c]
1975	11.01	292.22	73.53	66.31	443.06
1976	10.21	316.92	99.96	82.51	509.59
1977	8.02	387.23	114.26	100.53	610.06
1978	5.78	446.58	140.13	87.64	680.13
1979	8.13	498.31	171.04	119.45	796.93
1980	6.82	585.18	210.60	79.31	881.91
1981	9.42	667.68	249.98	85.01	1,012.10
1982	9.73	753.06	277.18	36.88	1,076.86
1983	9.47	798.73	285.62	53.73	1,147.54
1984	9.38	812.42	292.20	174.55	1,288.55
1985	9.34	824.58	307.37	100.86	1,242.15
1986	8.98	847.74	281.73	45.72	1,184.16
1987	8.49	872.52	253.59	49.56	1,184.15
1988	8.80	915.56	296.96	46.23	1,267.55
1989	8.39	918.14	314.70	68.88	1,310.11
1990	8.15	779.76	315.07	70.68	1,173.66
1991	8.10	820.24	330.64	57.77	1,216.76
1992	7.95	830.51	343.35	45.94	1,227.76
1993	7.85	861.87	397.57	46.43	1,313.72
1994	7.89	890.44	385.99	33.83	1,318.15
1995	6.23	912.36	382.79	28.25	1,329.64
1996	7.75	927.08	453.73	34.26	1,422.82
1997	7.66	932.01	474.99	39.99	1,454.65
1998	7.94	1,003.32	382.84	36.73	1,430.82
1999	8.00	1,090.33	395.88	42.69	1,536.90
2000	8.01	1,158.93	514.05	64.23	1,745.22
2001	8.64	1,243.40	579.22	63.38	1,894.64
2002	8.80	1,313.58	524.91	54.37	1,901.67
2003	9.24	1,397.78	695.85	74.89	2,177.76
2004	10.00	1,401.98	717.53	79.27	2,208.77
2005	12.24	1,726.39	892.98	112.71	2,744.33
2006	13.65	1,905.90	886.89	86.77	2,893.20
2007	11.64	2,047.67	922.48	101.13	3,082.91
2008	8.87	2,177.52	1,086.42	173.24	3,446.06
2009	6.94	2,150.95	818.89	77.40	3,054.17
2010	7.85	2,296.99	701.57	64.52	3,070.94
2011	6.76	2,403.88	699.01	104.99	3,214.63
2012	6.21	2,442.24	564.56	102.78	3,115.79
2013	6.98	2,542.69	671.27	84.50	3,305.44
2014	5.72	2,559.02	909.45	92.39	3,566.57
2015	5.08	2,562.52	592.92	60.56	3,221.07

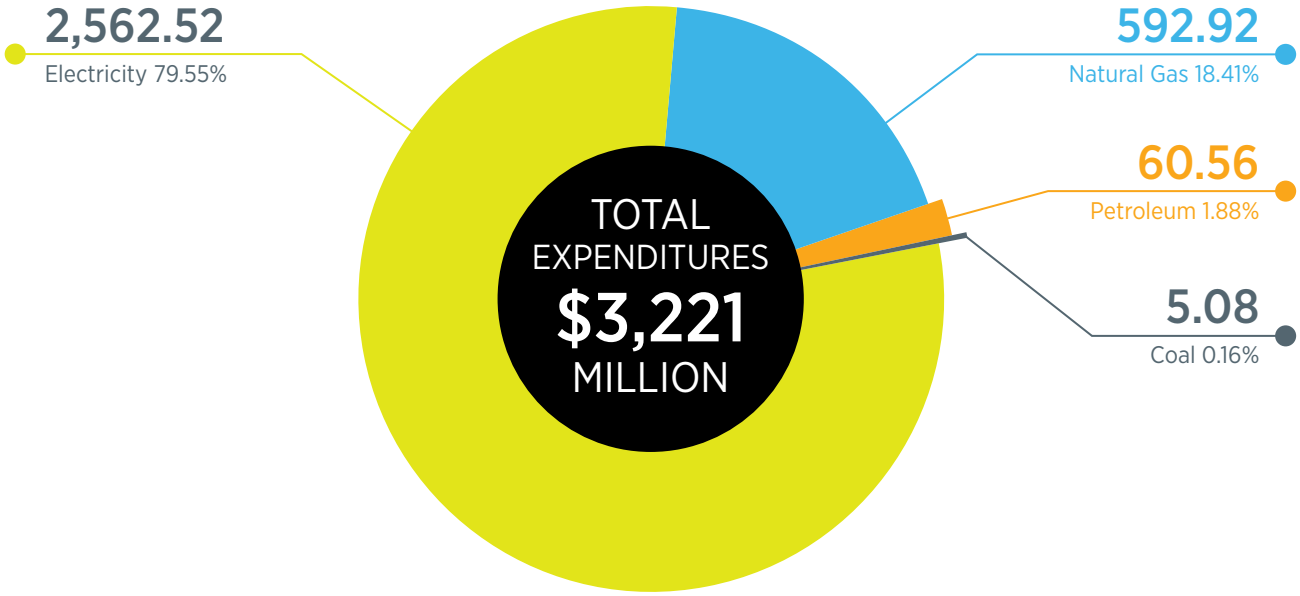
a Residual fuel oil use not available 1975-1981.

b Distillate oil price not available for Wisconsin beginning 2011; reports suspended as part of U.S. budget sequester. Residual fuel oil price not available for Wisconsin beginning 2009 due to publishing policies of the U.S. Energy Information Administration.

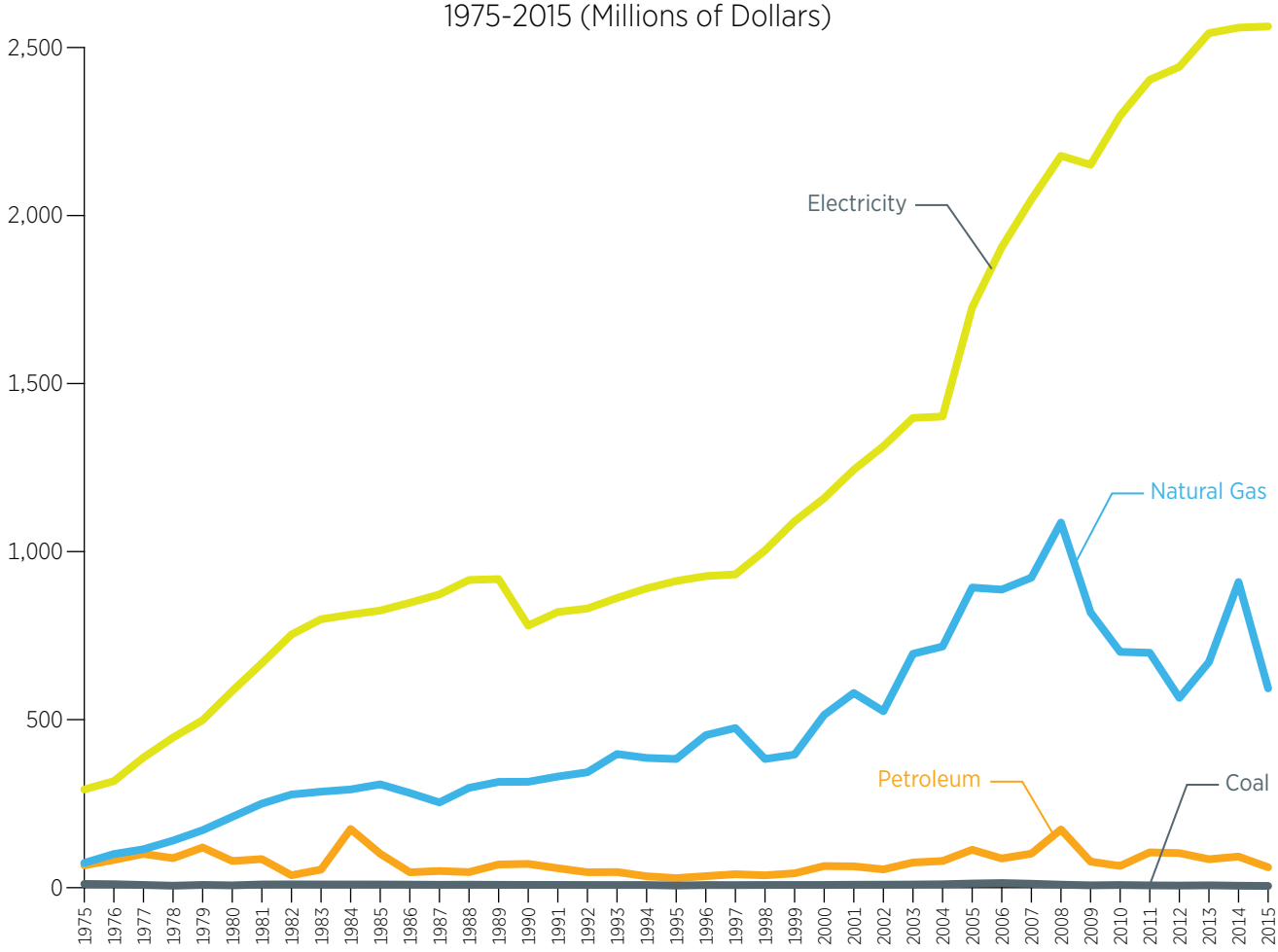
c Does not include renewable energy, except renewable fuels used in electricity production.

Source: American Gas Association, Gas Facts https://www.aga.org/gas-facts ; Personal communication, Wisconsin Investor-Owned Utilities (2008-2012); Public Service Commission of Wisconsin, Accounts and Finance Division, Statistics of Wisconsin Public Utilities Bulletin #8 (1970-1994), Annual Reports, Investor Owned Utilities (2005-2015) Unpublished data, Renewable Portfolio Summary Report (2012-2015) https://psc.wi.gov/Pages/Programs/RpsCompliance.aspx; Wisconsin Department of Administration, Energy Use in State Facilities Report (1989-2015) Unpublished data; U.S. Energy Information Administration, Distillate Fuel Oil and Kerosene Sales by End-Use http://www.eia.gov/dnav/pet/pet_cons_821ker_dcu_SWI_a.htm (-2015), Retail Sales of Electricity by State by Sector by Provider (EIA-861) (2003-2015) https://www.eia.gov/electricity/data/state/, Electric Sales and Revenue (1989-1999), Wisconsin No 2 Distillate Retail Sales by Refiners (1983 – 2015) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPD2_PTG_SWI_DPG&f=A, U.S. Residual Fuel Oil Retail Sales by Refiners (1983 – 2015) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPPR_PTG_NUS_DPG&f=A, Electric Power Monthly (1989-2012), Natural Gas Annual (1970-2015) https://www.eia.gov/dnav/ng/ng_sum_lsum_dcu_SWI_a.htm, State Energy Data System Prices and Expenditures (1970-2015) http://www.eia.gov/state/seds/seds-data-complete.cfm#PricesExpenditures; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1972-2015) Unpublished data.

Wisconsin Expenditures for Commercial Energy, by Type of Fuel
2015 (Millions of Dollars and Percent of Total)



Wisconsin Expenditures for Commercial Energy, by Type of Fuel
1975-2015 (Millions of Dollars)



Wisconsin Expenditures for Industrial Energy, by Type of Fuel

1975-2015 (Millions of Dollars)

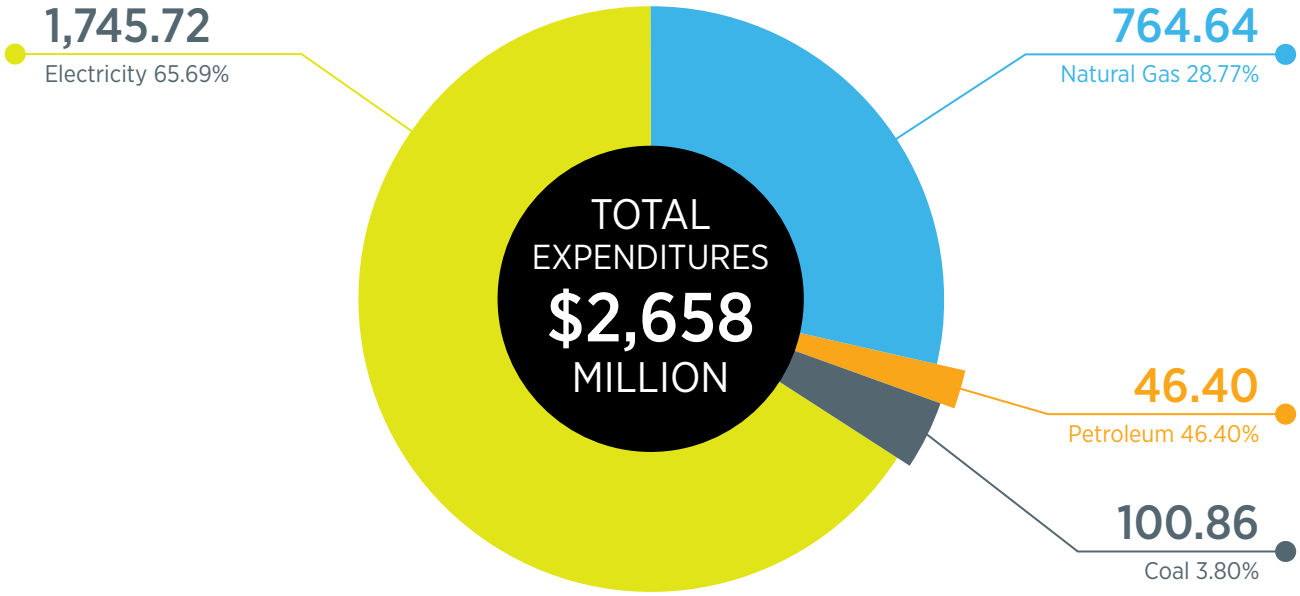
Year	Coal	Electricity	Natural Gas	Petroleum[a]	Total[b]
1975	63.40	242.60	174.17	43.53	523.69
1976	53.42	292.20	226.19	59.03	630.84
1977	61.47	307.80	246.93	83.82	700.01
1978	68.86	344.30	311.15	85.50	809.81
1979	76.19	389.45	376.56	76.75	918.96
1980	73.16	429.17	450.84	68.79	1,021.96
1981	101.01	504.08	529.96	88.37	1,223.42
1982	104.75	548.65	570.29	32.47	1,256.17
1983	108.36	588.32	593.81	30.89	1,321.38
1984	110.33	597.19	585.20	27.82	1,320.54
1985	108.45	601.38	559.88	17.29	1,287.01
1986	104.03	619.46	483.21	27.52	1,234.21
1987	94.43	633.57	511.92	34.31	1,274.24
1988	101.14	657.07	507.47	29.13	1,294.81
1989	95.98	674.53	471.91	28.52	1,270.93
1990	93.50	729.55	413.16	29.51	1,265.72
1991	89.43	749.21	407.26	23.26	1,269.16
1992	89.35	772.62	440.19	20.15	1,322.32
1993	89.79	810.45	469.80	36.55	1,406.58
1994	98.63	840.79	453.84	39.21	1,432.48
1995	78.31	855.84	432.49	41.11	1,407.74
1996	72.47	832.49	521.03	57.46	1,483.44
1997	71.72	892.79	643.72	62.93	1,671.16
1998	69.49	964.67	536.85	51.65	1,622.65
1999	65.53	958.01	592.75	65.52	1,681.81
2000	71.33	1,016.22	831.66	93.80	2,013.01
2001	81.55	1,060.71	994.27	75.00	2,211.53
2002	92.00	1,071.53	718.31	68.81	1,950.65
2003	88.90	1,170.41	993.13	83.75	2,336.20
2004	98.62	1,306.34	1,116.69	114.49	2,636.13
2005	115.50	1,315.14	1,293.57	184.06	2,908.28
2006	132.03	1,424.11	1,120.37	203.98	2,880.50
2007	139.68	1,516.54	1,165.44	245.10	3,066.76
2008	146.95	1,548.04	1,350.50	226.89	3,272.39
2009	144.77	1,449.72	935.89	75.68	2,606.07
2010	150.45	1,543.17	918.44	58.71	2,670.77
2011	152.07	1,654.95	893.99	70.96	2,771.97
2012	140.36	1,662.09	722.19	89.11	2,613.75
2013	119.18	1,656.71	818.28	88.98	2,683.15
2014	122.94	1,737.53	1,143.28	95.16	3,098.92
2015	100.86	1,745.72	764.64	46.40	2,657.61

a Distillate oil price not available for Wisconsin beginning 2011; reports suspended as part of U.S. budget sequester. Residual fuel oil price not available for Wisconsin beginning 2009 due to publishing policies of the U.S. Energy Information Administration.

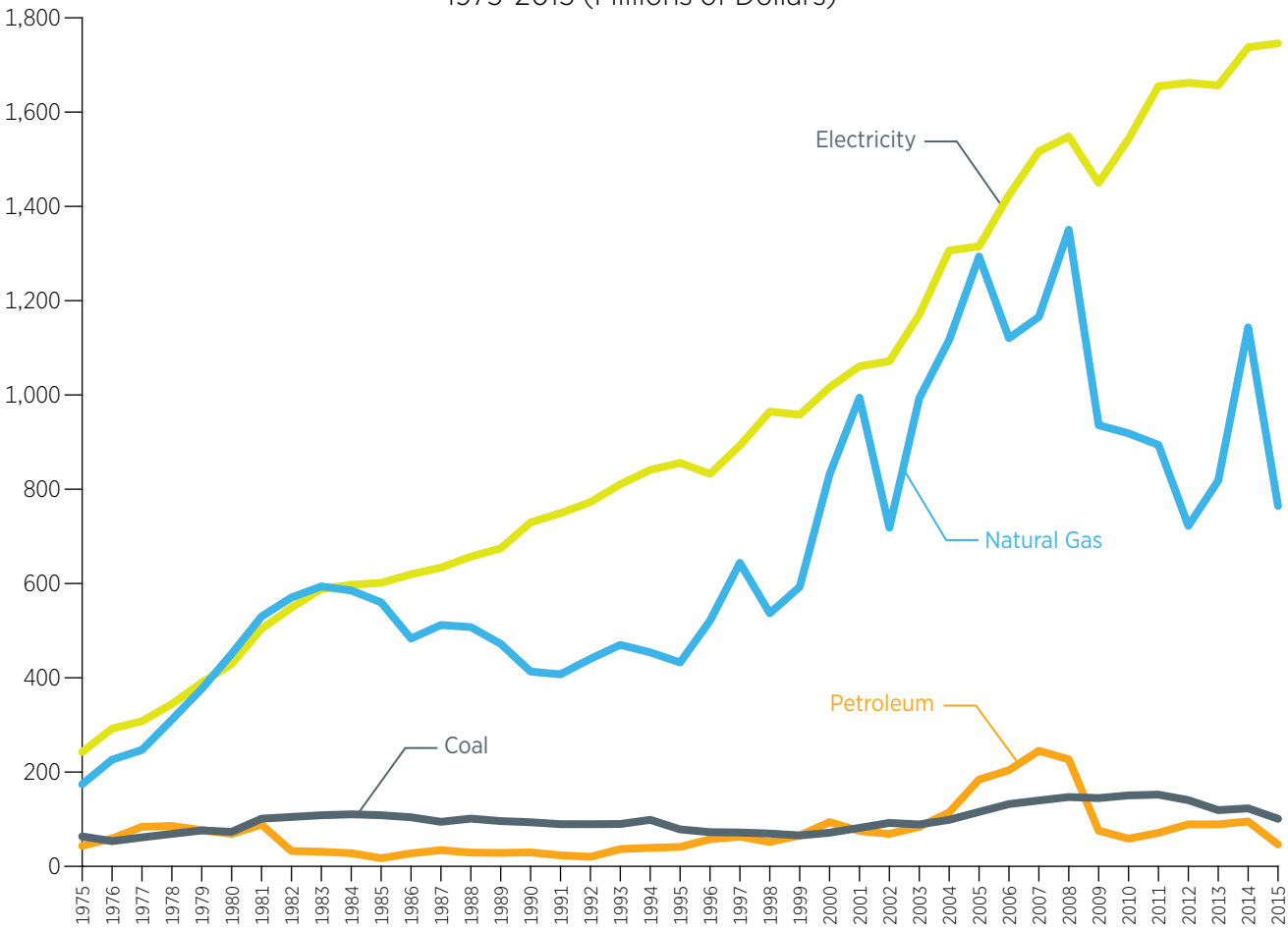
b Does not include renewable energy, except renewable fuels used in electricity production.

Source: Personal communication, Wisconsin public utilities (1986-2015), Wisconsin Investor-Owned Utilities (2008-2012); Public Service Commission of Wisconsin, Form PSC-AF2 Monthly Finanical and Statistical Reports (1994-2007) http://apps.psc.wi.gov/vs2015/ERF/ERFhome.aspx, Accounts and Finance Division, Generating Plants Operated by Wisconsin Electric Utilities, Bulletin #46 (1971-1994), Annual Reports, Investor Owned Utilities, Unpublished (2005-2015); U.S. Energy Information Administration, Distillate Fuel Oil and Kerosene Sales by End-Use (1984-2015) http://www.eia.gov/dnav/pet/pet_cons_821ker_dcu_SWI_a.htm, Sales of Residual Fuel Oil by End-Use http://www.eia.gov/dnav/pet/pet_cons_821rsda_dcu_SWI_a.htm (1984-2012), State Energy Data System Prices and Expenditures (1970-2015) http://www.eia.gov/state/seds/seds-data-complete.cfm#PricesExpenditures, Retail Sales of Electricity by State by Sector by Provider (EIA-861) (2003-2015) https://www.eia.gov/electricity/data/state/, Electric Sales and Revenue (1989-1999), Wisconsin No 2 Distillate Retail Sales by Refiners (1983 – 2015) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPD2_PTG_SWI_DPG&f=A, U.S. Residual Fuel Oil Retail Sales by Refiners (1983 – 2015) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPPR_PTG_NUS_DPG&f=A, Electric Power Monthly, (1989-2012); Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1995-2015) Unpublished data.

Wisconsin Expenditures for Industrial Energy, by Type of Fuel
2015 (Millions of Dollars and Percent of Total)



Wisconsin Expenditures for Industrial Energy, by Type of Fuel
1975-2015 (Millions of Dollars)



Wisconsin Expenditures for Residential Energy, by Type of Fuel

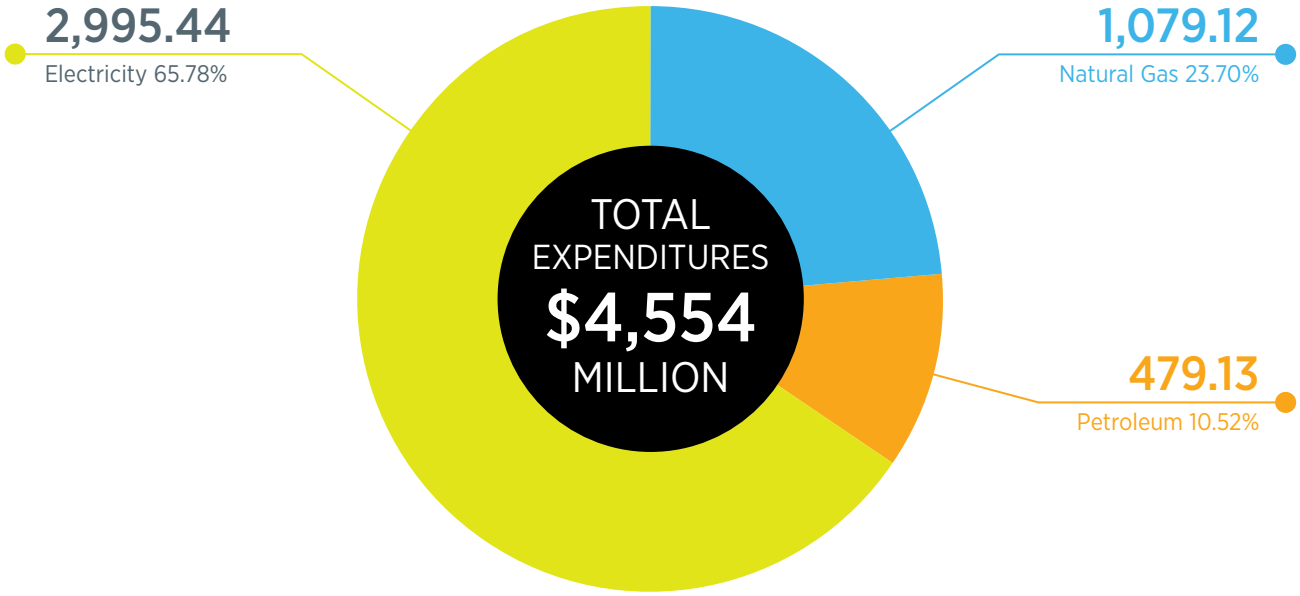
1975-2015 (Millions of Dollars)

Year	Coal	Electricity	Natural Gas	Petroleum	Total[a]
1975	11.80	373.27	209.35	257.00	851.41
1976	13.20	415.39	258.97	268.74	956.30
1977	10.20	457.94	297.14	290.90	1,056.18
1978	7.40	506.31	346.11	297.86	1,157.68
1979	9.80	558.03	382.44	374.27	1,324.54
1980	9.00	642.31	472.40	482.30	1,606.01
1981	8.30	726.09	529.76	490.33	1,754.48
1982	7.40	849.11	666.34	522.02	2,044.88
1983	6.30	908.75	726.80	470.65	2,112.50
1984	4.60	880.91	735.89	434.75	2,056.15
1985	3.80	892.71	749.59	449.21	2,095.30
1986	2.70	925.15	688.39	363.66	1,979.89
1987	1.50	932.09	616.79	307.18	1,857.56
1988	1.50	986.40	712.33	343.39	2,043.62
1989	1.50	974.94	715.99	368.59	2,061.02
1990	1.30	1,087.70	653.64	413.72	2,156.36
1991	1.50	1,168.88	695.46	375.66	2,241.51
1992	1.39	1,147.73	722.28	340.85	2,212.24
1993	1.29	1,222.08	824.05	381.21	2,428.62
1994	1.21	1,250.08	803.09	369.96	2,424.35
1995	1.11	1,298.74	792.05	340.17	2,432.06
1996	1.04	1,285.00	892.90	445.94	2,624.88
1997	0.96	1,273.00	873.31	405.68	2,552.95
1998	0.88	1,369.35	712.70	272.40	2,355.34
1999	0.79	1,426.36	787.74	307.18	2,522.07
2000	0.74	1,501.86	1,020.62	409.06	2,932.27
2001	0.72	1,612.54	1,098.45	451.58	3,163.29
2002	0.70	1,765.07	1,007.44	370.13	3,143.35
2003	0.61	1,853.52	1,314.61	458.86	3,627.60
2004	0.56	1,922.52	1,372.04	518.45	3,813.57
2005	0.57	2,171.51	1,564.48	617.51	4,354.06
2006	0.50	2,289.47	1,467.59	701.95	4,459.51
2007	0.40	2,431.39	1,577.33	723.61	4,732.72
2008	0.00	2,530.65	1,800.33	834.78	5,165.76
2009	0.00	2,557.39	1,432.77	585.11	4,575.28
2010	0.00	2,821.33	1,278.50	548.66	4,648.50
2011	0.00	2,885.57	1,264.00	599.60	4,749.17
2012	0.00	2,906.30	1,043.71	485.81	4,435.82
2013	0.00	2,993.91	1,235.84	586.33	4,816.08
2014	0.00	2,997.04	1,579.94	853.20	5,430.18
2015	0.00	2,995.44	1,079.12	479.13	4,553.69

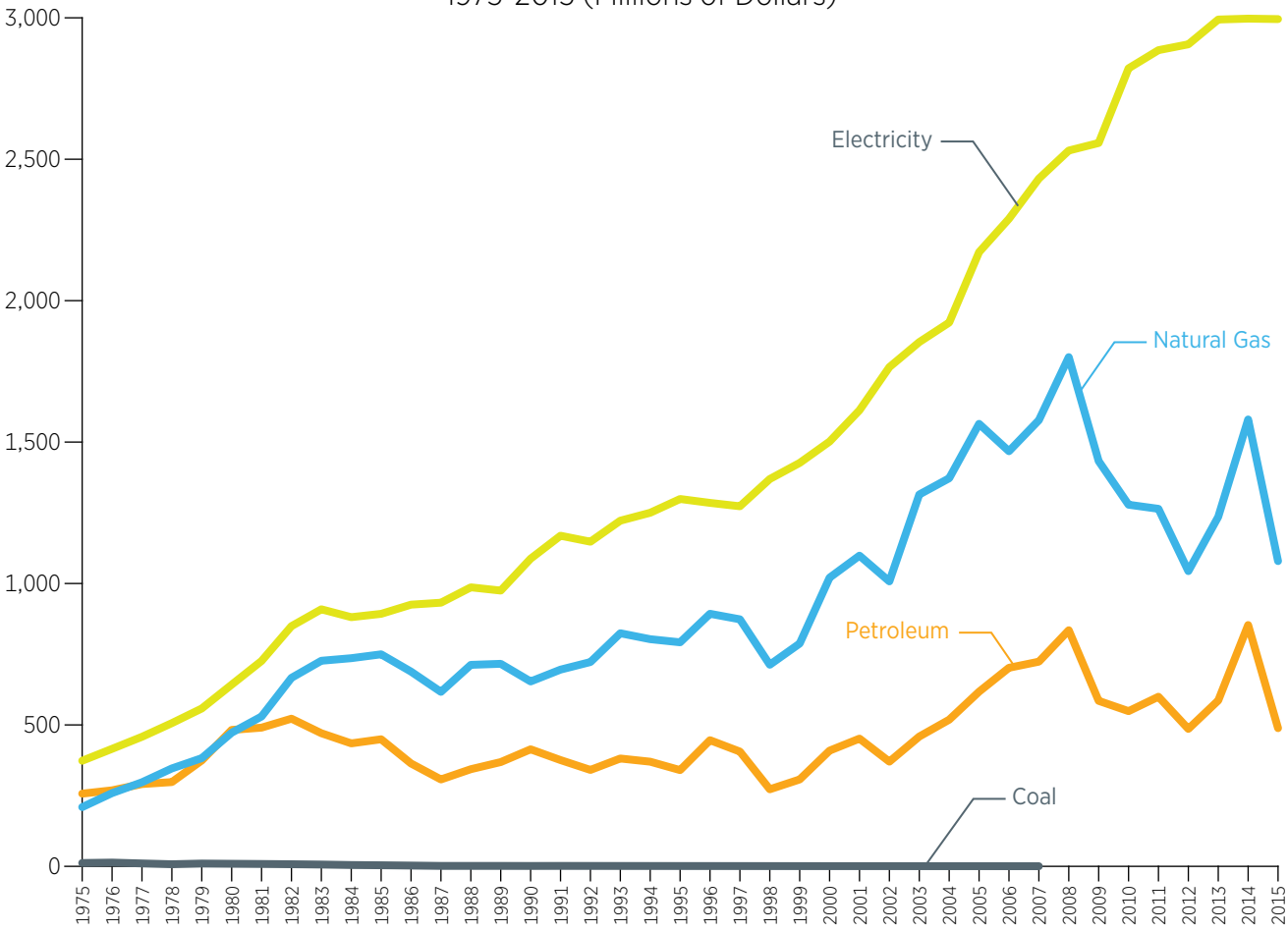
a Does not include renewable energy, except renewable fuels used in electricity production.

Source: Personal communication, Wisconsin Investor-Owned Utilities (2008-2012); Public Service Commission of Wisconsin, Accounts and Finance Division, Generating Plants Operated by Wisconsin Electric Utilities Bulletin #46 (1971-1994), Annual Reports, Investor Owned Utilities (2005-2015) Unpublished data, Renewable Portfolio Summary Report (2012-2015) https://psc.wi.gov/Pages/Programs/RpsCompliance.aspx; U.S. Energy Information Administration, Distillate Fuel Oil and Kerosene Sales by End-Use (1984-2015) http://www.eia.gov/dnav/pet/pet_cons_821ker_dcu_SWI_a.htm, Retail Sales of Electricity by State by Sector by Provider (EIA-861) (2003-2015) https://www.eia.gov/electricity/data/state/, Electric Sales and Revenue (1989-1999), Electric Power Monthly, (1989-2012), Natural Gas Annual (1970-2015) https://www.eia.gov/dnav/ng/ng_sum_lsum_dcu_SWI_a.htm; Wisconsin Department of Administration, Division of Energy, Wisconsin Residential Wood Energy Model (1981-2012) Unpublished; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1995-2015) Unpublished data.

Wisconsin Expenditures for Residential Energy, by Type of Fuel
2015 (Millions of Dollars and Percent of Total)



Wisconsin Expenditures for Residential Energy, by Type of Fuel
1975-2015 (Millions of Dollars)



Wisconsin Expenditures for Transportation Energy, by Type of Fuel

1975-2015 (Millions of Dollars)

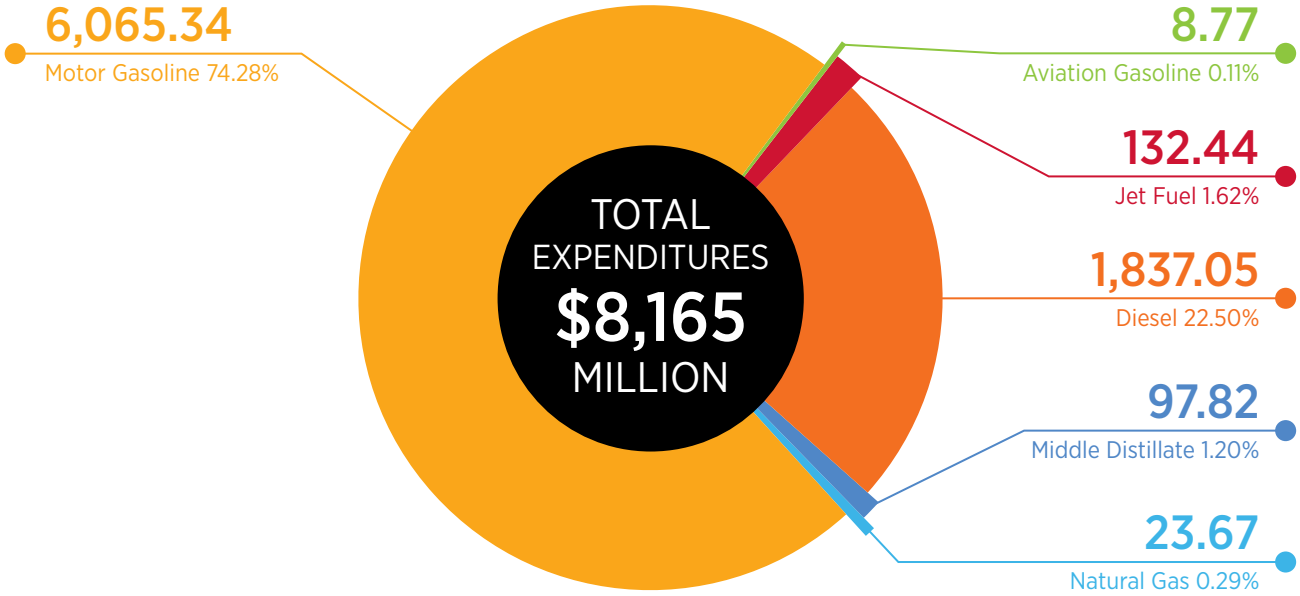
Year	Motor Gasoline[a,b]	Diesel[b]	Aviation Gasoline	Jet Fuel	Middle Distillate	Total Petroleum Expenditures	Natural Gas	Total
1975	1,186.89	74.41	4.51	21.17	14.50	1,301.48		1,301.48
1976	1,279.99	93.57	5.25	24.40	17.98	1,421.19		1,421.19
1977	1,413.61	116.93	5.81	28.70	19.53	1,584.58		1,584.58
1978	1,545.23	167.12	7.05	31.29	25.34	1,776.04		1,776.04
1979	1,961.38	260.09	9.73	47.10	48.03	2,326.33		2,326.33
1980	2,531.87	335.73	8.40	72.71	42.48	2,991.17		2,991.17
1981	2,710.63	404.93	8.30	73.99	52.56	3,250.41		3,250.41
1982	2,537.65	394.27	7.08	67.52	22.80	3,029.32		3,029.32
1983	2,420.26	403.03	6.05	54.38	25.03	2,908.74		2,908.74
1984	2,354.13	453.65	6.00	51.12	24.41	2,889.31		2,889.31
1985	2,368.66	470.03	5.18	52.67	23.37	2,919.92		2,919.92
1986	1,788.89	388.93	4.21	33.28	15.81	2,231.13		2,231.13
1987	1,928.04	406.37	4.79	35.10	17.16	2,391.46		2,391.46
1988	1,974.29	497.68	4.32	37.96	14.27	2,528.52		2,528.52
1989	2,129.15	466.49	5.15	50.77	16.69	2,668.24		2,668.24
1990	2,426.13	570.77	5.34	67.96	21.68	3,091.88		3,091.88
1991	2,391.58	586.06	5.00	61.50	20.70	3,064.84		3,064.84
1992	2,399.34	601.41	4.96	56.16	19.09	3,080.95		3,080.95
1993	2,452.63	654.53	5.27	49.34	22.09	3,183.85		3,183.85
1994	2,576.18	695.25	5.37	47.62	22.84	3,347.26		3,347.26
1995	2,643.58	724.58	5.56	45.00	22.56	3,441.28		3,441.28
1996	2,951.42	798.03	5.98	57.32	29.10	3,841.84		3,841.84
1997	2,982.75	830.41	6.15	54.93	24.73	3,898.95		3,898.95
1998	2,666.92	761.46	5.29	41.51	19.34	3,494.52		3,494.52
1999	2,964.67	852.12	6.00	49.33	25.14	3,897.27		3,897.27
2000	3,803.55	1,101.72	7.99	81.23	36.79	5,031.29		5,031.29
2001	3,799.86	1,054.93	7.48	70.32	34.34	4,966.92		4,966.92
2002	3,677.62	997.55	5.61	69.01	31.60	4,781.38		4,781.38
2003	4,230.91	1,113.38	5.66	80.78	33.75	5,464.47		5,464.47
2004	4,970.73	1,387.79	6.71	118.64	45.90	6,529.77		6,529.77
2005	5,854.06	1,684.06	8.57	194.60	67.86	7,809.14	0.29	7,809.43
2006	6,439.44	1,964.84	8.66	214.14	83.13	8,710.21	0.26	8,710.47
2007	7,197.92	2,083.09	8.03	218.88	103.91	9,611.83	0.32	9,612.15
2008	7,971.93	2,644.49	8.97	322.64	111.06	11,059.10	0.32	11,059.41
2009	5,715.14	1,507.82	4.65	187.99	57.75	7,473.35	0.31	7,473.66
2010	6,921.62	1,992.51	6.72	220.47	79.49	9,220.80	0.52	9,221.32
2011	8,606.59	2,537.65	9.78	265.49	111.25	11,530.75	0.93	11,531.69
2012	8,653.37	2,629.31	9.82	202.02	159.98	11,654.50	2.79	11,657.28
2013	8,296.60	2,495.32	9.04	203.01	140.97	11,144.95	7.03	11,151.99
2014	8,402.13	2,669.36	10.03	234.75	162.64	11,478.91	17.61	11,496.52
2015	6,065.34	1,837.05	8.77	132.44	97.82	8,141.41	23.67	8,165.09

a Includes ethanol.

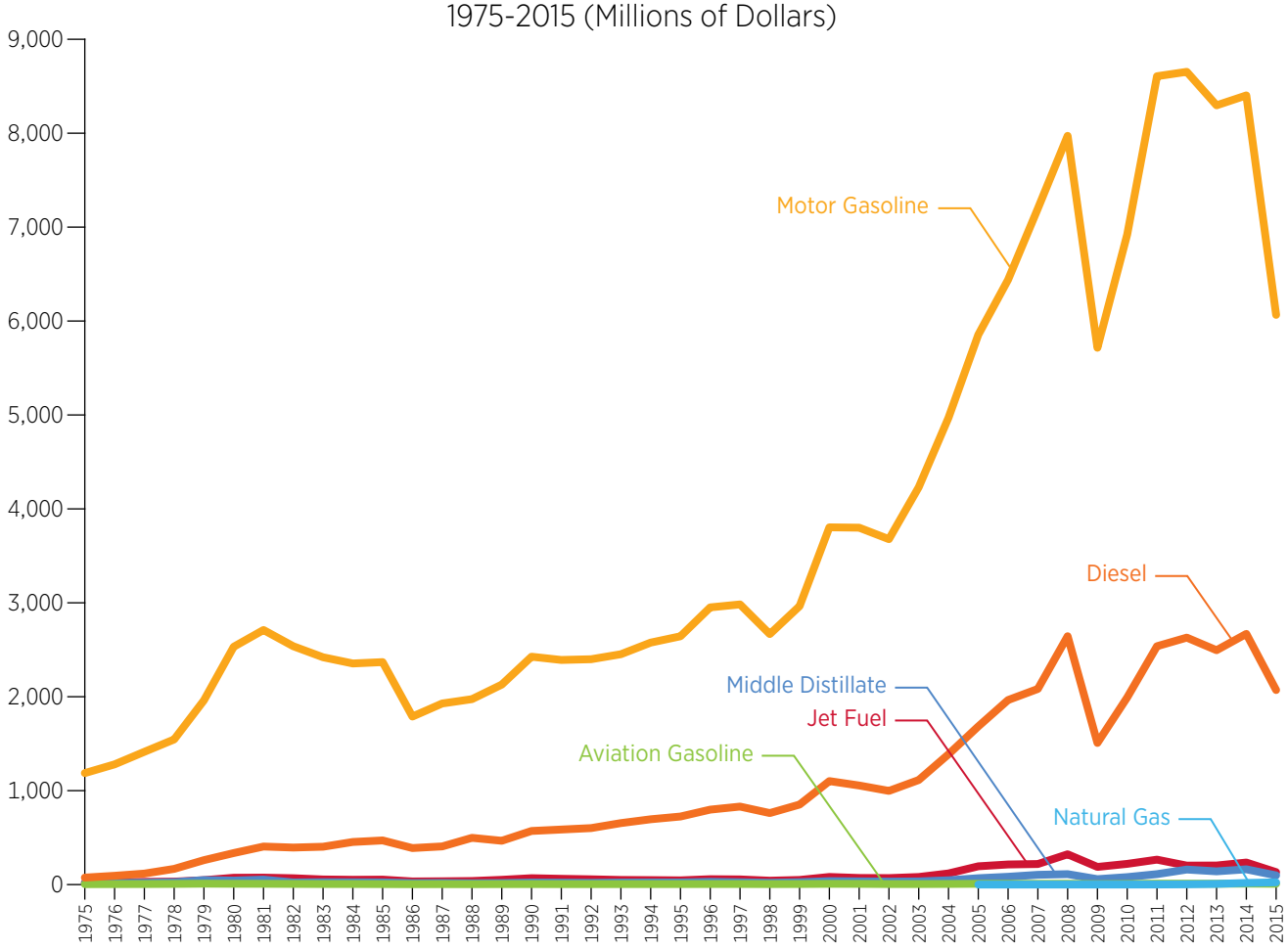
b Historical revision to methodology.

Source: Personal communication, airport fixed base operators (2000-2009), railroad companies (2000-2015); U.S. Department of Energy, Alternative Fuels Data Center, Clean Cities Alternative Fuel Price Report (2000-2015) https://www.afdc.energy.gov/publications/search/keyword/?q=alternative%20fuel%20price%20report; U.S. Department of Energy, Form EIA-782C Monthly Report of Petroleum Products Sold into States for Consumption (1983-2012), Petroleum Supply Annual (1982-2012), State Energy Data System, Transporation Sector Energy Consumption Estimates (1970-2015) https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_use/tra/use_tra_WI.html&sid=WI; Wisconsin Department of Commerce, Bureau of Petroleum Inspection, Report on Petroleum Products Inspected and Delivered to Wisconsin (1970-1995) http://datcp.wi.gov/Consumer/Weights_and_Measures/Liquefied_Petroleum_Gas/index.aspx; Wisconsin Department of Revenue, Motor Vehicle Fuel Tax Statistics Federal Highway Report (1996-2012) https://www.revenue.wi.gov/Pages/ISE/Excise-Fuel-Home.aspx, Fuel Tax Statistical Report (1996-2012) https://www.revenue.wi.gov/Pages/ISE/Excise-Fuel-Home.aspx, Gasohol Report (1970-2015) Unpublished; Wisconsin Division of the American Automobile Association, Wisconsin Average Gas Prices (1970-2015) http://gasprices.aaa.com/?state=WI.

Wisconsin Expenditures for Transportation Energy, by Type of Fuel
2015 (Millions of Dollars and Percent of Total)



Wisconsin Expenditures for Transportation Energy, by Type of Fuel
1975-2015 (Millions of Dollars)



Consumers & the Economy

Wisconsin households consume energy seamlessly every day – flipping a light switch, turning up the thermostat, or starting a load of laundry. Approximately 250,000 Wisconsinites (largely in rural areas) have no access to natural gas and must depend on electric heat, propane, or wood for space heating or cooking. Energy consumed for space heating and cooling is highly dependent on weather and is measured with **heating** and **cooling degree-days** (HDDs and CDDs). HDDs occur when indoor space heating is used to warm homes as outdoor temperatures drop below 65ºF. As a cold weather state, HDDs are important in Wisconsin – total 2015 HDDs were 4 percent below the 30 year normal, indicating a reduced need for natural gas for space heating due to warmer temperatures. As CDDs increase, more schools, businesses, and residences are using additional electric energy for cooling. Degree days are weighted according to the population of a region (degree day zone) to illustrate the connection between changes in outdoor air temperature and indoor energy use.

Five major appliances are typically used in Wisconsin households. Since 1990, energy use by these appliances has decreased: room AC units by 31 percent, refrigerators 47 percent, freezers 43 percent, washing machines 78 percent, and dishwashers 55 percent, a trend also evident on the national level. Today, a typical U.S. household can save about $321 per year on their energy bills as a result of higher efficiency standards.[1]

Programs like Focus on Energy have a positive impact on the state's economy by increasing in-state expenditures of energy efficiency and renewable energy technologies. Wisconsin residents and businesses that are eligible Focus on Energy participants receive information, technical support, and financial incentives to help manage rising energy costs, protect the environment, and promote in-state economic development. In a 2015 online Focus on Energy trade ally survey, 59 percent of program trade allies reported increased business activity since their involvement with Focus on Energy.[2] As a demonstration of the impact that energy efficiency has on Wisconsin's gross state product, 41 percent of these respondents added new products and 27 percent added new services.

1 EIA | Wisconsin State Energy Profile | https://www.eia.gov/state/analysis.php?sid=WI#43

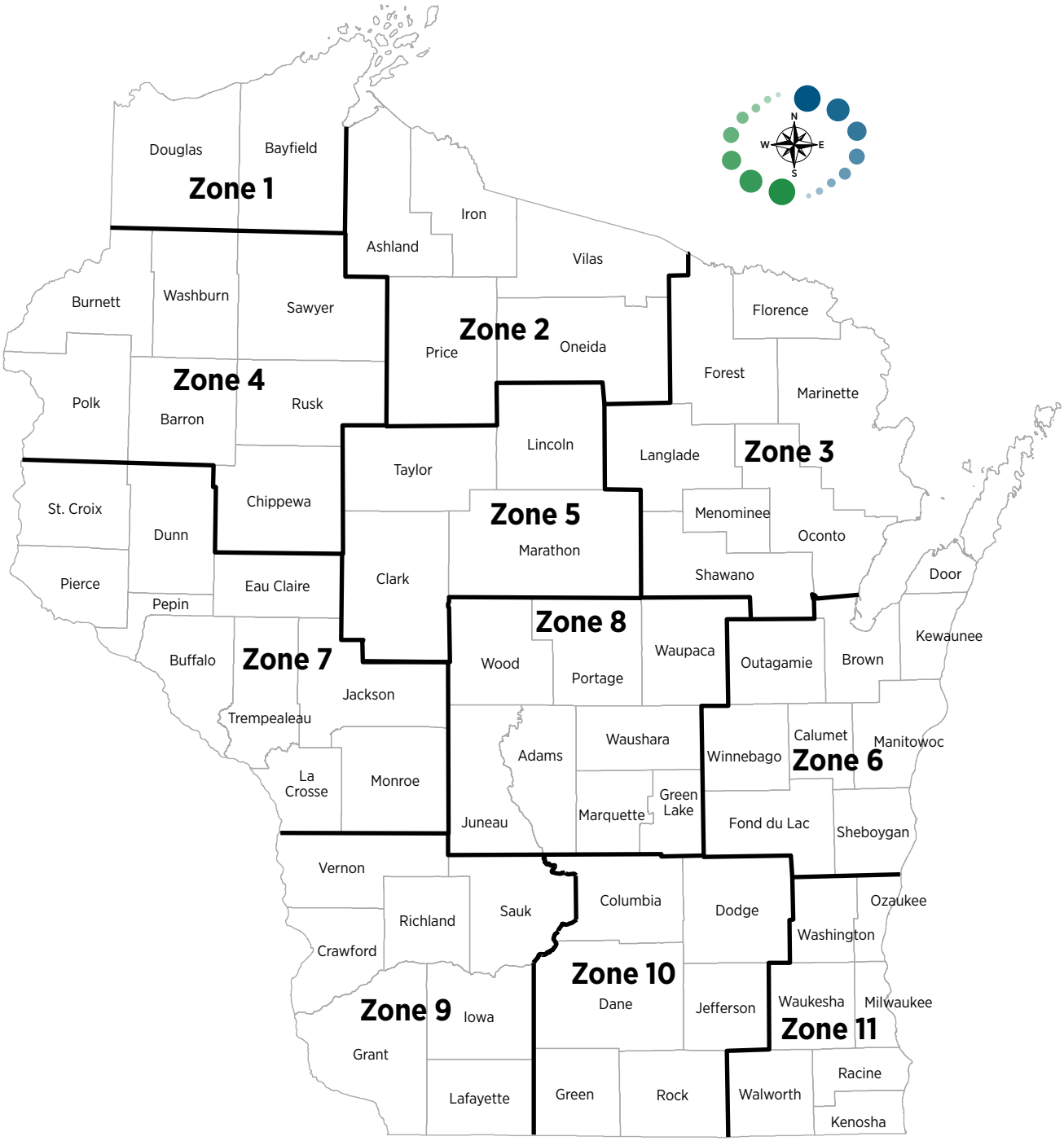
2 Focus on Energy Economic Impacts 2011-2014 page 15 https://focusonenergy.com/sites/default/files/WI%20FOE%202011%20to%202014%20Econ%20Impact%20Report.pdf

▲ Even our canine companions consume energy – manufacturing and distributing dog food requires energy use by the industrial sector. Photo credit: Megan Levy, Driftless Area, Dane County.

▲ Washing machines are a household staple, consuming 231 kilowatt-hours of energy in 2015 in Wisconsin.

▲ Making life easier – dishwashers use electricity to wash dishes while an electric water heaters supply hot water.

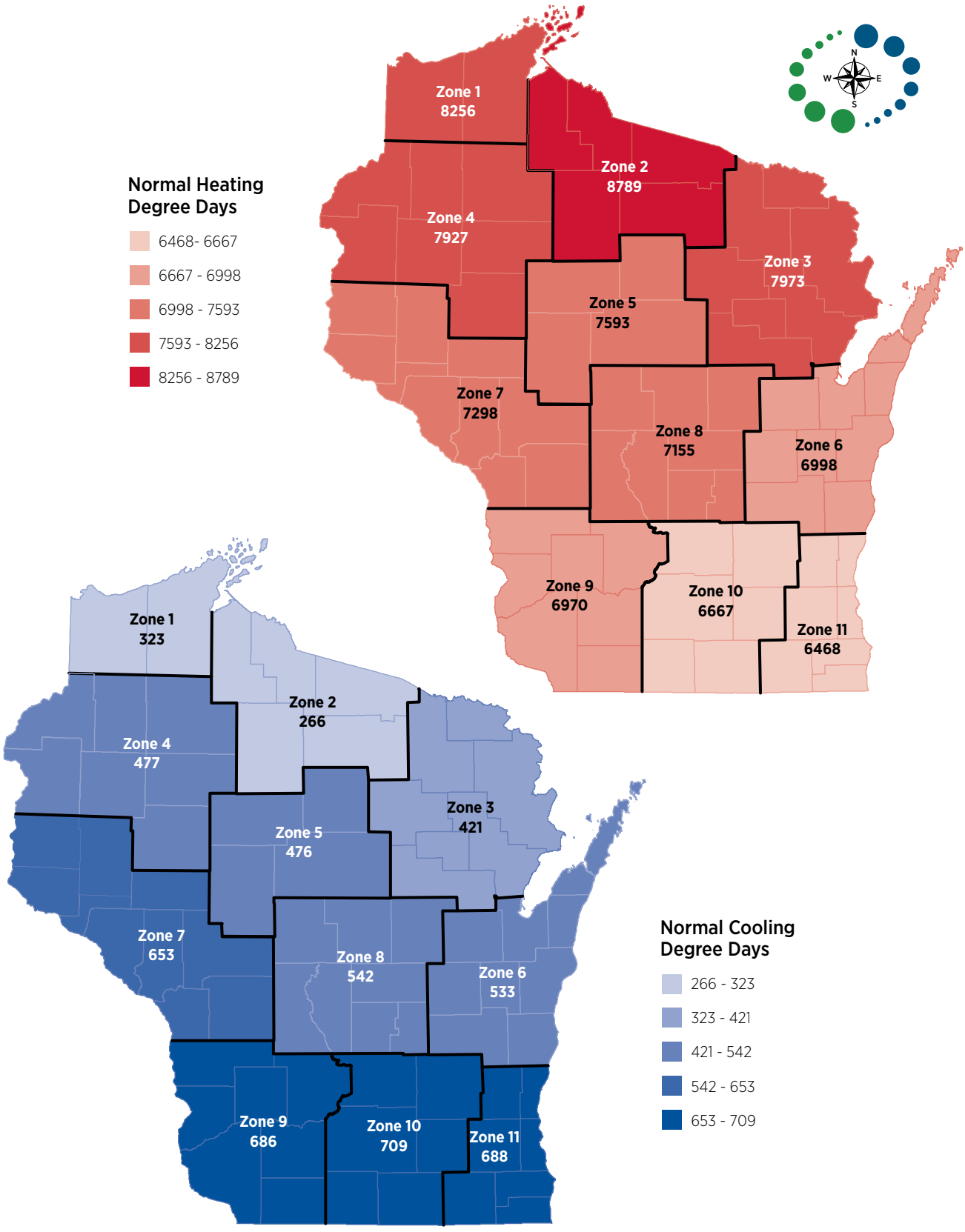
Wisconsin Degree Day Zones



Source: Public Service Commission of Wisconsin; Wisconsin Department of Administration, Heating Cooling and Growing Degree Days http://www.doa.state.wi.us/degreedays/

Normal Heating and Cooling Degree Days, by Zone

Based on 65°F



Source: Public Service Commission of Wisconsin; Wisconsin Department of Administration, Heating Cooling and Growing Degree Days http://www.doa.state.wi.us/degreedays/

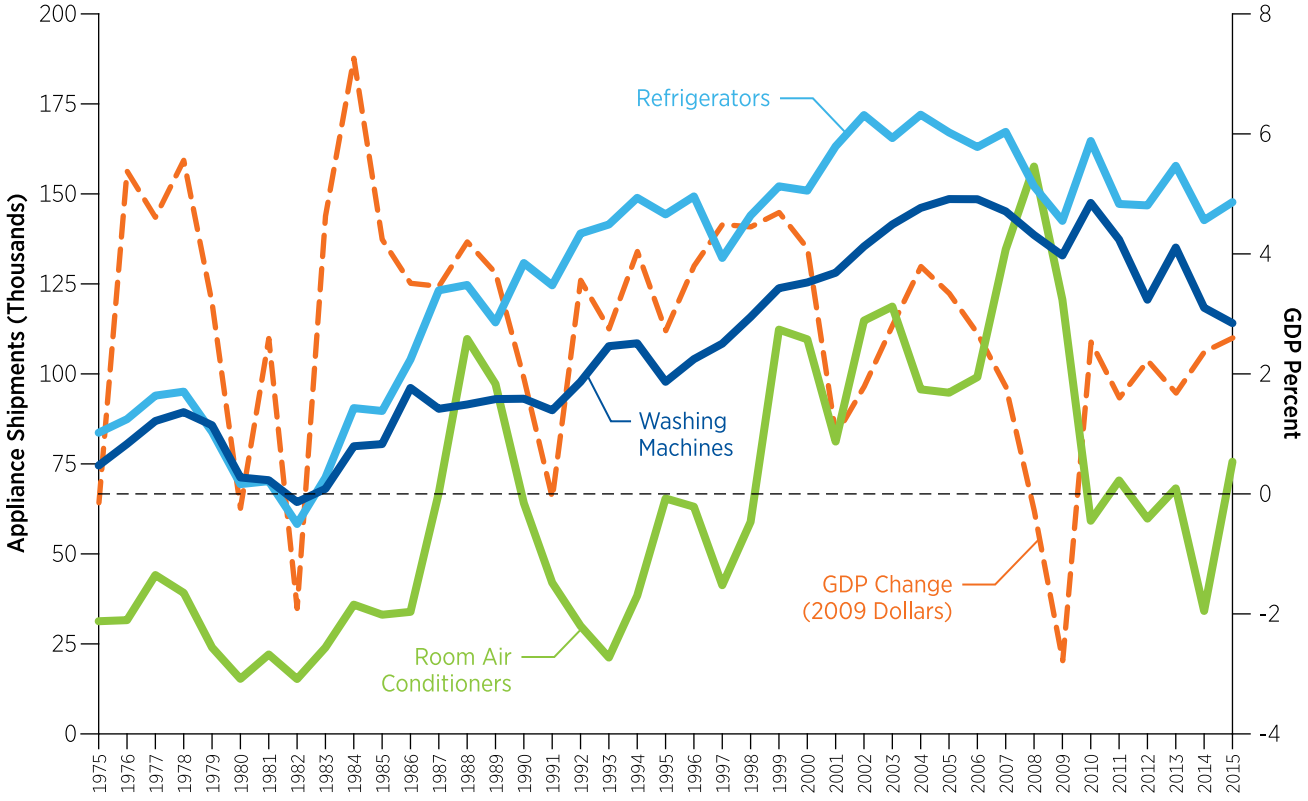
Appliance Shipments to Wisconsin, by Type

1975-2015 (Cooling Degree Days and Gross National Product)

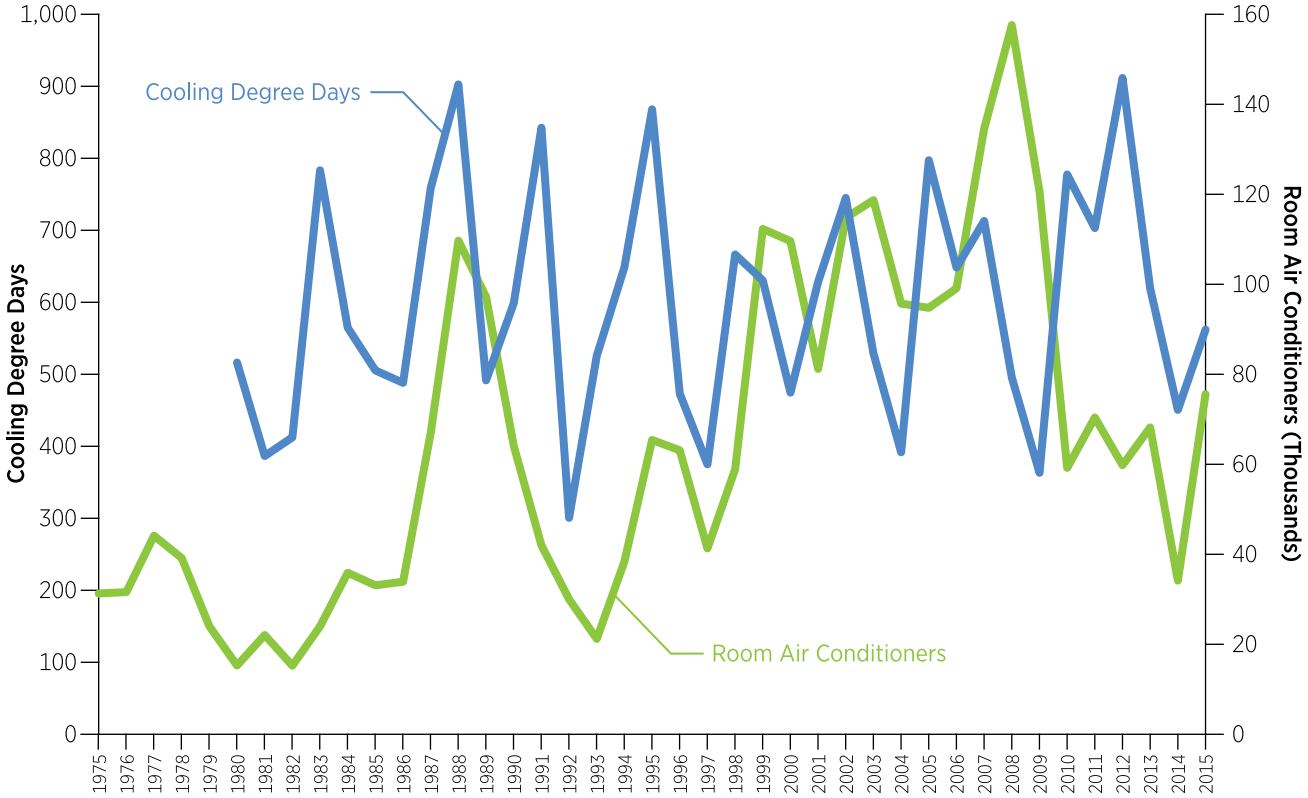
Year	Refrigerators	Room Air Conditioners	Washing Machines	Percent Change in GDP	Cooling Degree Days
1975	83,658	31,297	74,547	-0.20	
1976	87,422	31,594	80,533	5.38	
1977	93,966	44,128	86,910	4.61	
1978	95,070	39,170	89,370	5.56	
1979	83,890	24,010	85,730	3.18	
1980	69,380	15,290	71,230	-0.24	516.41
1981	70,210	22,060	70,470	2.59	386.49
1982	58,300	15,242	64,391	-1.91	412.40
1983	71,194	23,992	68,069	4.63	783.32
1984	90,500	35,900	79,900	7.26	564.73
1985	89,700	33,100	80,500	4.24	505.34
1986	104,000	33,900	96,100	3.51	488.13
1987	123,200	67,000	90,300	3.46	758.66
1988	124,700	109,700	91,500	4.20	902.64
1989	114,300	97,200	93,000	3.68	491.56
1990	130,800	64,100	93,100	1.92	598.64
1991	124,600	42,000	89,900	-0.07	842.42
1992	139,000	30,000	97,800	3.56	300.55
1993	141,500	21,200	107,700	2.75	525.64
1994	148,900	38,400	108,500	4.04	648.85
1995	144,300	65,400	97,800	2.72	867.98
1996	149,300	63,100	104,100	3.80	473.13
1997	132,200	41,300	108,400	4.49	374.95
1998	144,000	58,900	115,800	4.45	666.40
1999	152,100	112,300	123,800	4.69	630.40
2000	150,900	109,600	125,400	4.09	474.48
2001	163,200	81,200	128,100	0.98	628.41
2002	171,900	114,800	135,400	1.79	744.95
2003	165,500	118,700	141,500	2.81	528.84
2004	172,000	95,700	146,100	3.79	391.67
2005	167,062	94,773	148,563	3.34	797.30
2006	163,019	99,097	148,519	2.67	648.30
2007	167,234	134,569	145,139	1.78	713.02
2008	152,087	157,601	138,575	-0.29	495.48
2009	142,502	120,597	132,900	-2.78	363.11
2010	164,700	59,200	147,500	2.53	777.56
2011	147,200	70,400	137,300	1.60	703.03
2012	146,800	59,800	120,600	2.22	911.53
2013	157,800	68,200	135,100	1.68	619.18
2014	142,696	34,148	118,369	2.37	450.54
2015	147,700	75,600	114,100	2.60	562.06

Source: Association of Home Appliance Manufacturers, Estimated Distributor Sales by State (2013-2015) https://www.aham.org/consumer; National Oceanographic and Atmospheric Administration, National Weather Service (1970-2015) http://www.nws.noaa.gov/climate/; Wisconsin Department of Administration, Heating, Cooling and Growing Degree Days (2013-2015) http://degreedays.wi.gov/; U.S. Department of Commerce, Bureau of Economic Analysis, Implicit Price Deflators for Gross Domestic Product (1970-2015) https://www.bea.gov/iTable/iTable.cfm?reqid=19&step=2#reqid=19&step=3&isuri=1&1910=x&0=-99&1921=survey&1903=13&1904=1985&1905=2018&1906=a&1911=0.

Appliance Shipments to Wisconsin, by Type, and Gross National Product 1975-2015



Room Air Conditioner Shipments to Wisconsin and Cooling Degree Days 1975-2015



Average Energy Consumption by New Major Household Appliances

1975-2015 (kWh per Year)

Year	Dishwasher[a]	Freezer	Refrigerator[b]	Room A/C[c]	Washing Machine[d]
1975	810	1,223	1,590	996	1,324
1976	781	1,143	1,544	987	1,267
1977	752	1,064	1,499	977	1,211
1978	723	985	1,453	967	1,154
1979	694	934	1,366	937	1,098
1980	656	883	1,278	907	1,056
1981	617	837	1,190	929	1,015
1982	599	813	1,191	908	1,011
1983	581	813	1,160	870	1,007
1984	574	799	1,139	835	996
1985	585	787	1,058	802	1,011
1986	570	754	1,074	800	1,027
1987	572	685	974	750	1,062
1988	583	677	964	732	1,074
1989	578	611	934	720	1,051
1990	574	600	916	690	1,047
1991	574	600	857	740	1,051
1992	572	590	821	682	1,047
1993	550	453	660	681	1,062
1994	460	471	653	674	874
1995	445	465	649	670	870
1996	443	461	661	656	878
1997	434	469	669	661	866
1998	424	470	680	658	890
1999	426	472	690	635	851
2000	430	476	704	629	862
2001	413	438	565	615	858
2002	396	444	520	603	835
2003	393	444	514	566	772
2004	361	448	500	602	478
2005	359	442	490	478	443
2006	350	435	506	550	463
2007	329	431	498	521	321
2008	327	454	483	530	314
2009	312	423	460	554	282
2010[e]	295	433	455	515	259
2011	282	443	452	516	259
2012	280	447	454	493	274
2013	273	462	444	482	270
2014	269	462	502	485	267
2015	258	344	490	479	231
Energy Star[f]	**190**	**300**	**314**	**307**	**75**

a Loads per year: 215. Based on electric water heater. Standards increased May 14, 1994 and January 1, 2010.

b Standards increased July 1, 2001.

c At 600 hours per year.

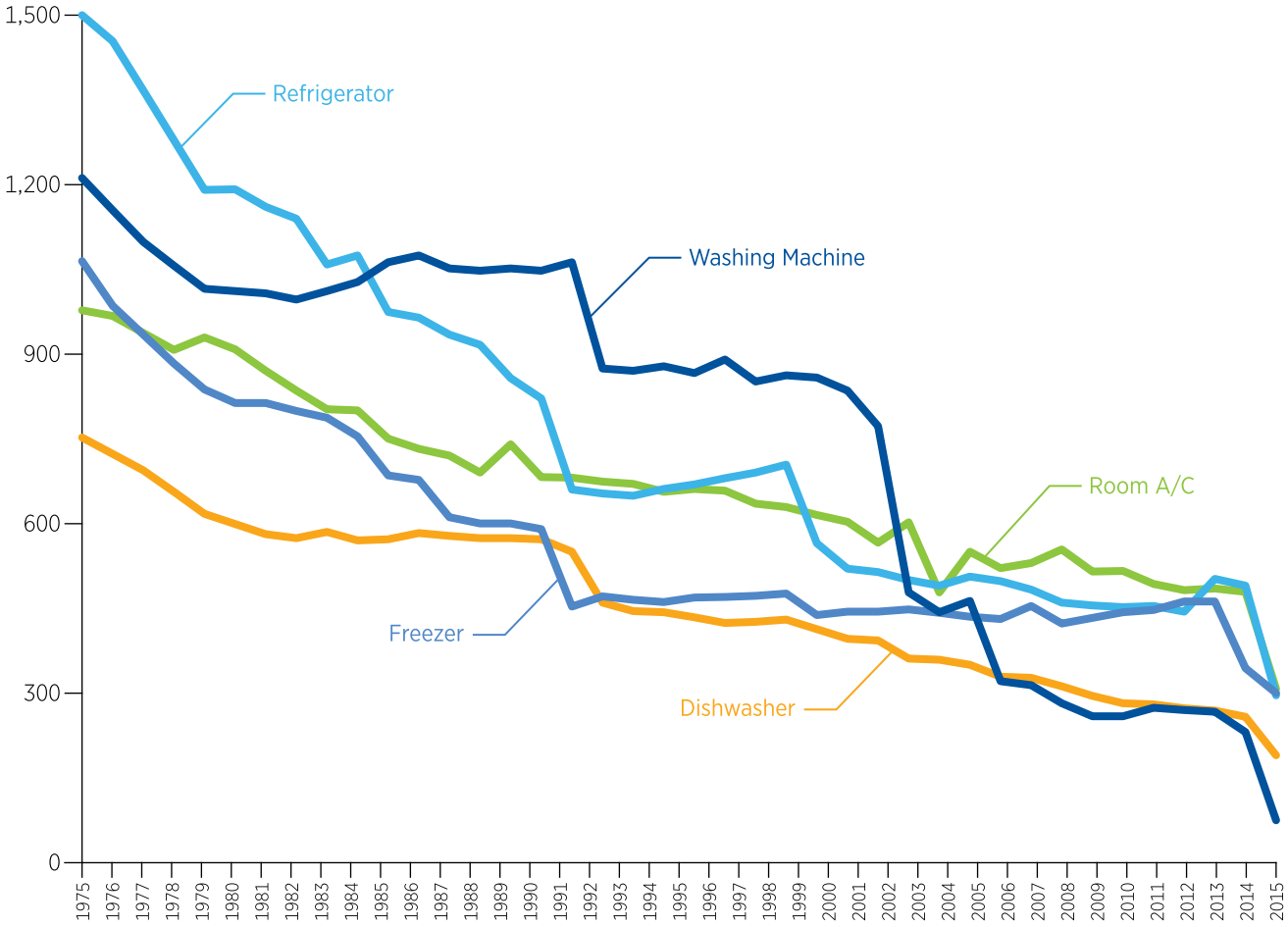
d Loads per year: 392. Based on electric water heater. Standards increased January 1, 2004 and January 1, 2007.

e Energy use by freezer estimated.

f U.S. Environmental Protection Agency Energy Star efficiency value for most efficient appliance.

Source: Association of Home Appliance Manufacturers, Energy Efficiency and Consumption Trends, (1970-2015) https://www.aham.org/consumer; ENERGY START Most Efficient 2015 https://www.energystar.gov/index.cfm?c=most_efficient.me_index%20.

Average Energy Consumption by New Major Household Appliances
1975-2015 (kWh per Year)



Wisconsin Natural Gas Sales, by Month

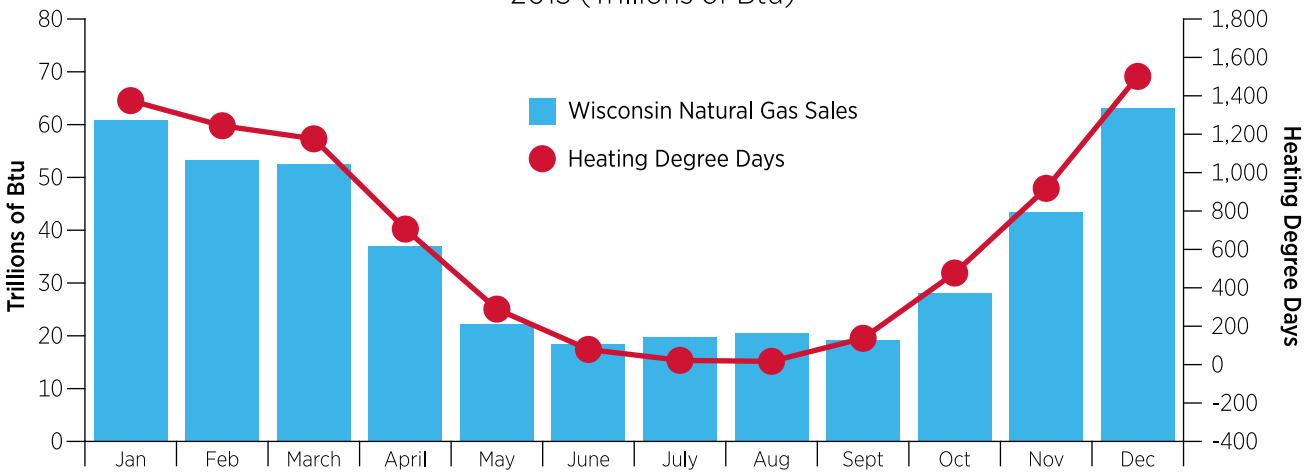
1976-2015 (Trillions of Btu)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total[a]
1976	50.90	40.30	38.50	26.50	22.30	16.00	14.60	15.80	16.30	27.40	38.90	51.30	358.80
1980	52.80	47.30	42.90	27.40	17.60	14.10	13.40	13.50	14.80	25.90	32.20	46.30	348.20
1982	56.10	43.30	37.40	27.20	14.50	12.80	11.20	12.00	13.70	19.20	31.00	37.10	315.50
1983	43.10	34.50	33.10	26.30	18.00	12.20	11.30	11.80	13.60	19.60	29.10	50.60	303.20
1984	49.90	35.70	39.90	25.10	17.70	12.20	11.20	11.80	13.30	19.20	31.10	40.10	307.20
1985	51.30	42.30	32.20	21.20	14.40	11.20	11.10	11.70	13.10	18.70	31.20	48.60	307.00
1986	45.90	40.70	32.20	20.30	14.40	11.60	10.40	10.80	12.30	19.00	33.10	38.30	289.00
1987	41.30	33.50	31.80	21.30	14.50	11.70	11.20	11.80	12.80	24.00	28.80	37.50	280.20
1988	50.30	45.40	35.20	23.60	14.70	12.10	10.90	12.20	13.50	25.90	29.80	42.50	316.10
1989	43.20	46.20	39.60	26.10	17.70	12.50	11.20	11.80	13.70	21.90	34.50	52.80	331.20
1990	40.60	39.30	34.30	25.20	18.90	12.70	11.50	12.80	14.10	22.70	30.30	44.30	306.70
1991	53.40	38.70	36.60	24.20	17.50	11.80	12.40	13.20	15.70	23.60	38.30	43.90	329.30
1992	46.00	39.70	38.40	29.50	17.70	14.00	12.70	13.50	15.20	23.80	36.70	46.50	333.70
1993	49.90	45.90	42.40	30.60	17.30	14.40	12.50	13.60	16.70	25.10	36.20	45.50	350.10
1994	61.40	50.00	38.90	26.70	19.90	14.40	13.20	15.20	15.40	21.80	33.30	42.60	352.80
1995	52.70	48.70	39.10	32.90	20.00	15.50	15.20	17.60	16.90	25.20	44.70	54.50	383.00
1996	59.50	50.80	48.00	33.10	23.90	16.30	14.60	16.00	17.20	26.40	45.10	52.00	402.90
1997	61.90	47.90	46.30	33.40	25.90	16.60	17.30	16.30	17.10	26.90	41.70	50.40	401.70
1998	52.50	39.20	44.70	27.90	19.60	18.90	17.50	17.70	18.90	23.50	35.20	47.40	363.00
1999	63.50	42.90	44.00	28.80	19.90	17.60	19.20	17.90	17.90	27.50	32.80	51.40	383.40
2000	60.10	47.10	37.70	32.00	21.60	15.90	15.60	18.00	17.60	24.20	40.60	63.70	394.10
2001	53.00	51.80	45.80	26.40	18.40	16.10	15.70	16.70	17.70	27.40	28.90	44.60	362.50
2002	50.20	44.10	49.20	31.80	24.20	16.00	16.70	16.30	17.50	29.80	40.70	50.50	387.00
2003	63.50	56.00	45.30	32.20	20.70	15.60	15.50	17.30	16.70	25.40	38.00	48.60	394.80
2004	65.40	48.90	41.20	27.60	21.30	14.80	15.10	14.80	15.50	23.10	33.40	56.60	377.70
2005	60.20	45.70	48.30	28.80	22.80	21.20	20.20	21.00	18.40	24.00	35.80	55.10	401.50
2006	44.90	49.30	42.20	23.60	19.80	18.50	17.70	18.40	17.60	31.20	35.60	45.00	363.80
2007	54.30	61.50	41.10	32.40	19.10	16.00	17.70	20.30	17.30	25.10	37.40	54.60	396.80
2008	62.20	58.80	49.00	30.30	20.50	15.60	17.10	16.90	16.70	26.40	37.80	59.10	410.40
2009	67.53	49.12	43.06	30.39	18.30	17.43	14.73	16.03	17.53	28.38	32.44	54.53	389.47
2010	61.40	48.67	36.38	22.32	19.56	17.76	18.61	19.89	16.67	22.00	34.71	55.15	373.12
2011	61.26	49.90	45.44	31.32	23.02	16.21	19.34	17.64	16.74	24.65	35.31	45.91	386.75
2012	54.37	48.91	33.13	29.00	23.48	21.59	25.39	20.18	19.00	27.92	38.28	47.65	388.90
2013	60.77	53.23	52.56	37.01	22.14	18.36	19.73	20.55	19.13	28.02	43.45	63.15	438.10
2014	73.94	63.43	53.12	35.22	24.47	19.09	18.29	19.69	20.48	30.81	51.20	53.22	462.97
2015	66.93	69.05	49.39	32.07	24.30	21.90	23.25	21.95	22.81	27.67	38.96	49.17	447.45

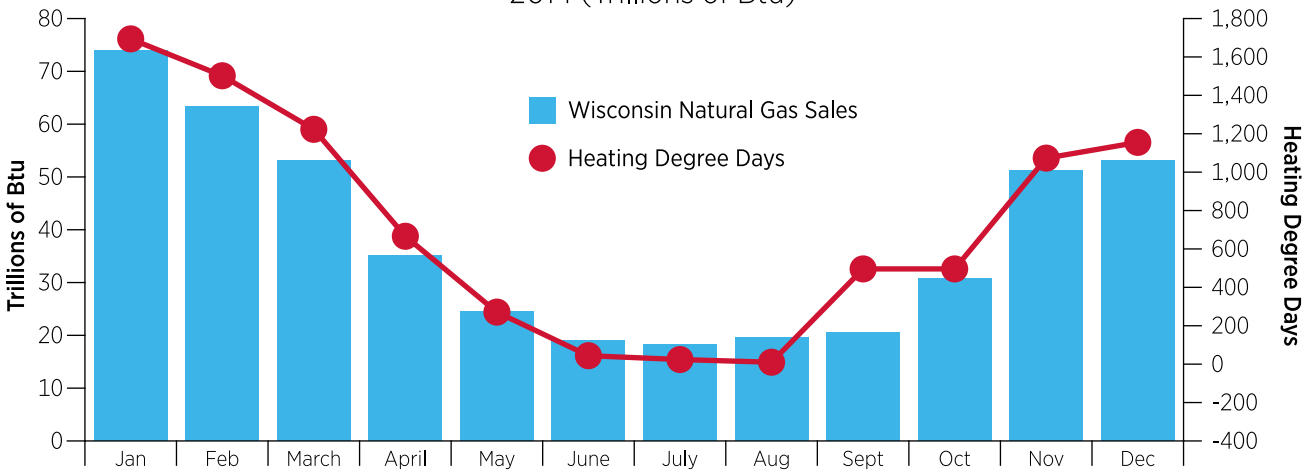
a Totals may differ with other figures in book due to different sources.

Source: Public Service Commission of Wisconsin, Form PSC-AF2 Monthly Finanical and Statistical Reports (1976-2015) http://apps.psc.wi.gov/vs2015/ERF/ERFhome.aspx; National Oceanic and Atmospheric Administration, National Weather Service (1970-2015) http://w2.weather.gov/climate/.

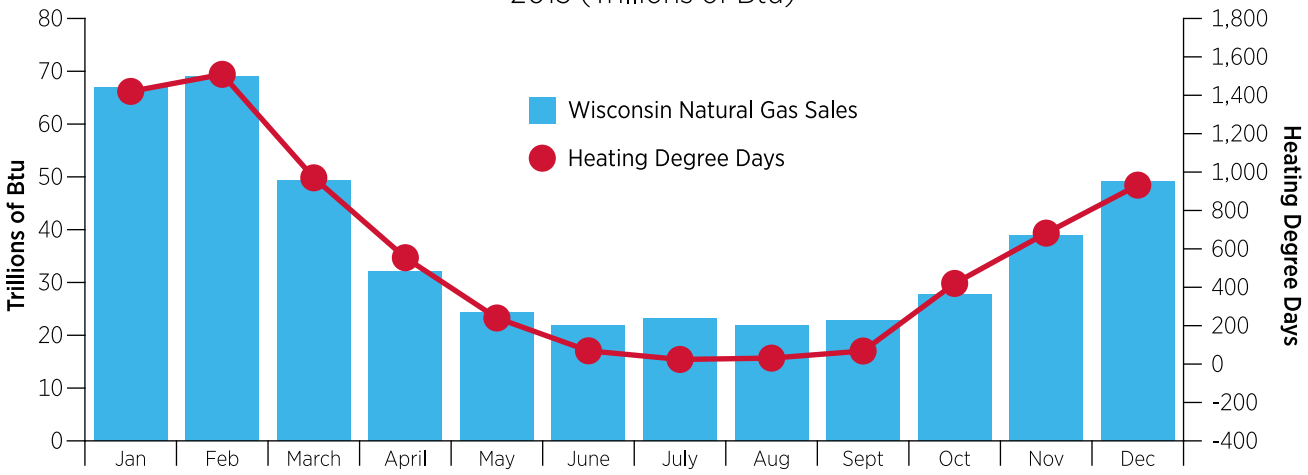
Wisconsin Natural Gas Sales and Heating Degree Days, by Month
2013 (Trillions of Btu)



Wisconsin Natural Gas Sales and Heating Degree Days, by Month
2014 (Trillions of Btu)



Wisconsin Natural Gas Sales and Heating Degree Days, by Month
2015 (Trillions of Btu)



Wisconsin Per Capita Resource Energy Consumption, by Type of Fuel

1975-2015 (Millions of Btu)

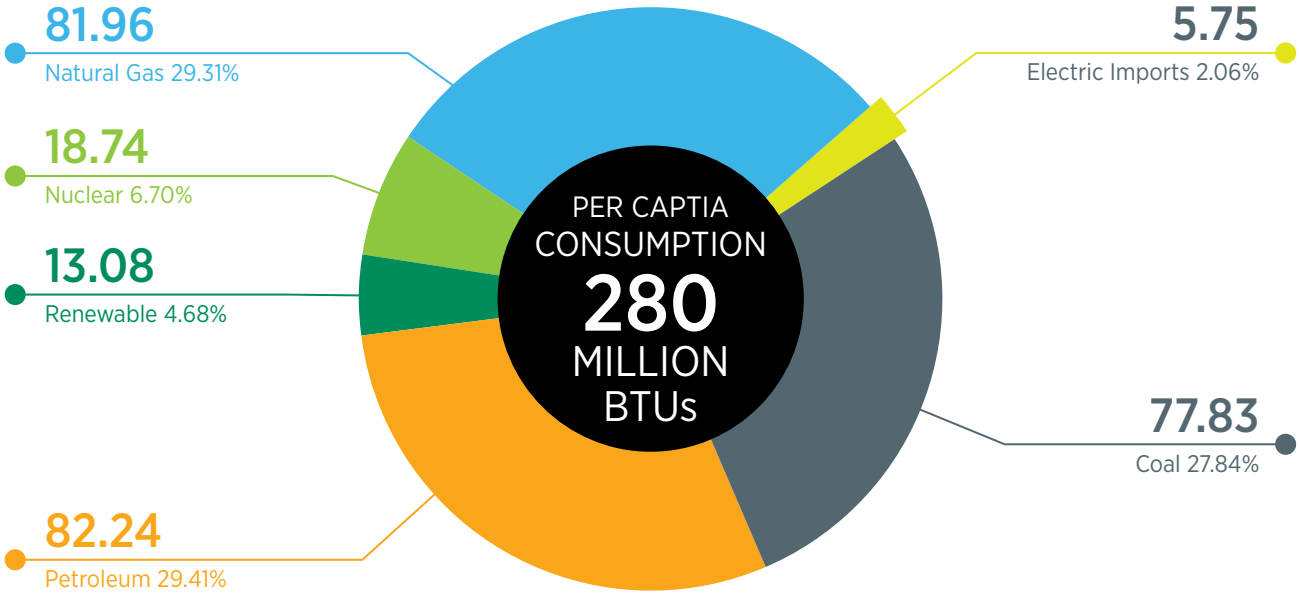
Year	Coal	Electric Imports[a]	Natural Gas	Nuclear	Petroleum	Renewable	Total
1975	57.40	-4.46	80.60	24.32	103.95	3.81	265.62
1976	62.95	-4.88	79.05	25.26	109.32	3.99	275.69
1977	63.60	-3.52	70.01	25.62	112.46	4.34	272.51
1978	62.82	-0.68	76.36	27.32	114.31	5.12	285.27
1979	66.50	-0.89	79.05	24.08	107.25	4.88	280.87
1980	68.89	-1.37	73.00	22.72	96.43	4.63	264.30
1981	68.47	1.54	67.49	23.64	90.05	4.81	256.00
1982	67.59	1.94	65.83	23.45	85.30	4.81	248.93
1983	75.17	0.95	63.21	21.28	84.72	5.23	250.56
1984	77.96	-1.55	64.24	24.50	89.31	5.44	259.91
1985	78.86	-0.38	64.08	24.97	87.62	5.37	260.53
1986	80.76	0.33	60.21	25.43	88.45	5.33	260.49
1987	83.88	2.35	58.19	25.56	87.65	4.72	262.35
1988	84.69	6.67	65.11	25.67	91.02	4.80	277.96
1989	83.85	9.70	67.56	24.09	91.93	5.17	282.30
1990	83.88	17.87	62.48	24.72	89.12	5.85	283.92
1991	85.57	8.84	66.33	23.91	87.59	6.20	278.45
1992	82.39	10.03	65.68	24.08	87.97	5.79	275.94
1993	84.89	11.99	68.34	24.35	90.74	5.76	286.07
1994	88.72	13.15	68.14	24.23	91.09	5.50	290.83
1995	89.43	23.72	73.53	22.85	89.86	5.32	304.71
1996	93.09	15.32	77.21	20.90	92.21	5.71	304.44
1997	96.86	24.75	76.04	8.03	92.85	5.57	304.10
1998	93.59	20.33	69.42	19.16	92.51	5.34	300.35
1999	94.96	18.77	71.55	23.32	95.43	5.32	309.35
2000	96.65	19.22	73.21	23.03	92.42	5.64	310.18
2001	96.53	20.90	66.67	22.98	92.32	5.57	304.97
2002	93.38	18.44	70.55	24.69	93.18	6.05	306.29
2003	96.19	15.86	71.97	24.09	93.34	5.87	307.31
2004	97.43	17.40	69.40	23.28	94.08	6.26	307.85
2005	95.87	22.61	74.48	14.75	89.70	5.97	303.38
2006	92.45	10.15	67.14	23.69	88.15	6.51	288.09
2007	91.95	15.75	71.67	24.85	88.30	7.28	299.81
2008	95.88	12.81	73.75	23.27	84.17	8.63	298.51
2009	85.45	12.03	69.37	24.16	79.29	9.33	279.63
2010	91.92	8.55	65.94	25.21	79.51	10.41	281.54
2011	85.96	11.49	69.90	21.87	78.18	10.51	277.91
2012	72.28	18.59	71.67	18.45	75.79	11.35	268.13
2013	86.26	10.19	78.35	18.70	74.98	12.84	281.32
2014	78.01	15.60	82.19	17.72	81.17	12.96	287.66
2015[p]	77.83	5.75	81.96	18.74	82.24	13.08	279.59

a Negative values indicate electricity produced in Wisconsin was exported out of state.

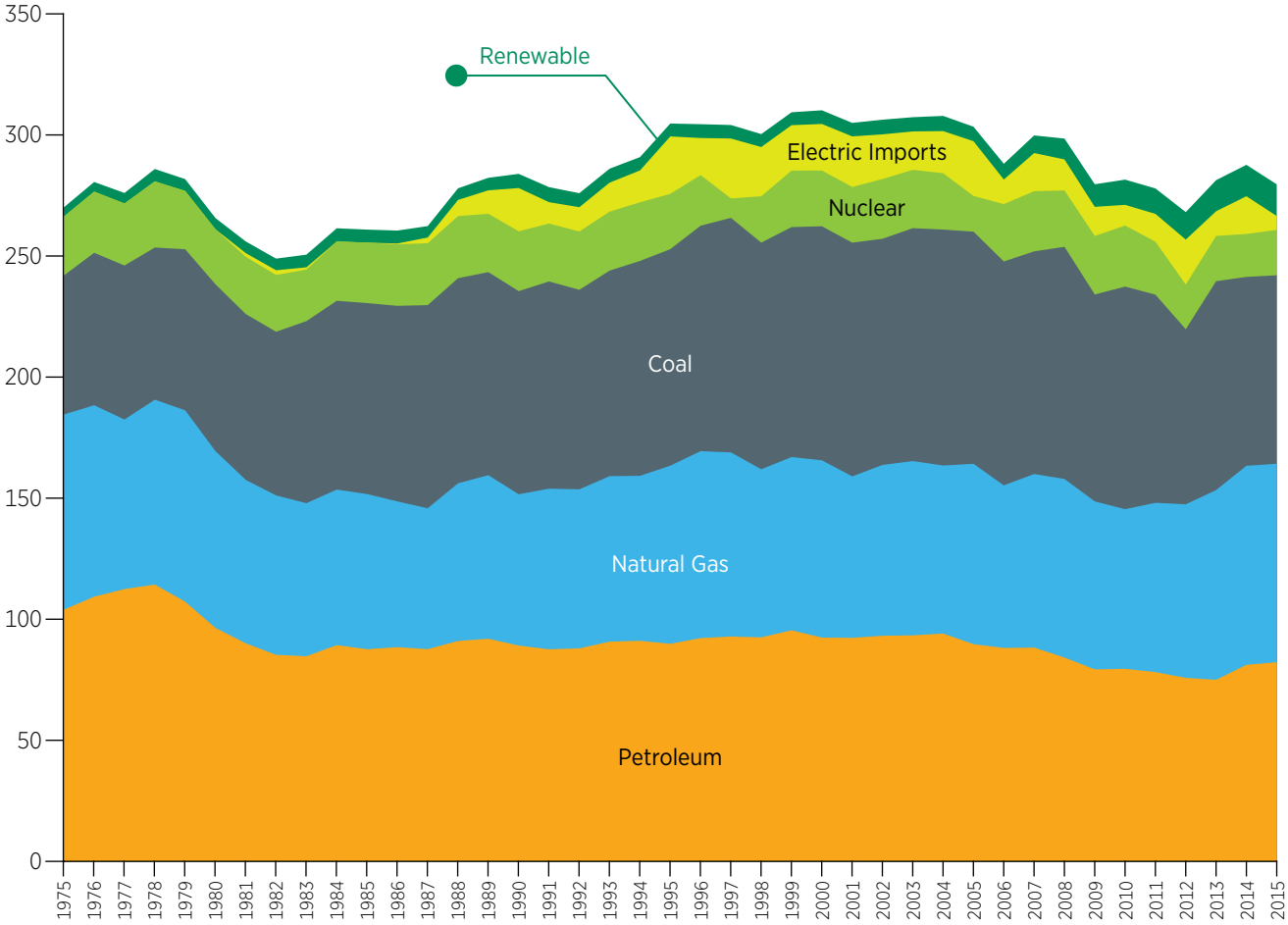
p Preliminary.

Source: See Energy Use & Prices by Sector; Electric Power Generation; Renewable Energy; Wisconsin Population, Number of Households and Total and Per Capita Personal Income

Wisconsin Per Capita Resource Energy Consumption, by Type of Fuel
2015 (Millions of Btu and Percent of Total)



Wisconsin Per Capita Resource Energy Consumption, by Type of Fuel
1975-2015 (Millions of Btu)



Wisconsin Population-Weighted Cooling Degree Days, by Month, and 30-year Normal

1980-2015

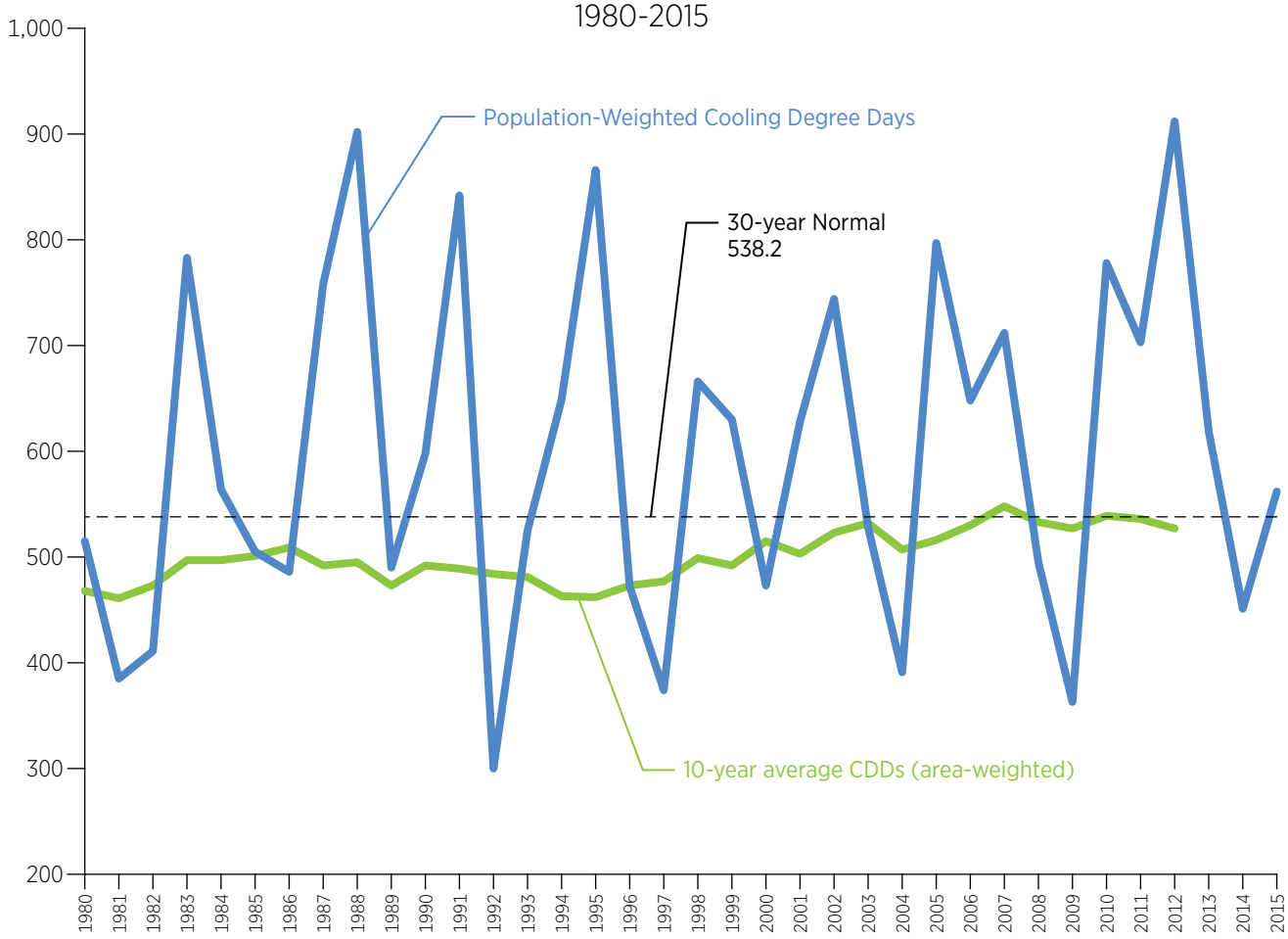
Year	March	April[a]	May	June	July	Aug	Sept	Oct[b]	Total
1980	0	9	34	71	218	156	27	0	515
1981	0	1	6	82	156	125	15	0	385
1982	0	0	27	20	200	115	45	4	411
1983	0	0	0	124	322	254	76	7	783
1984	0	1	7	117	175	223	40	1	564
1985	0	31	28	60	185	98	103	0	505
1986	0	8	30	87	238	76	47	0	486
1987	0	6	72	196	294	157	33	0	758
1988	0	0	52	199	307	301	43	0	902
1989	0	0	15	77	223	143	28	4	490
1990	0	32	3	120	176	164	99	4	598
1991	0	10	126	187	229	208	79	3	842
1992	0	0	29	58	83	92	35	3	300
1993	0	0	15	68	200	221	19	2	525
1994	0	4	37	184	199	128	92	5	649
1995	0	0	8	223	273	310	47	5	866
1996	0	0	26	110	107	168	58	3	472
1997	0	0	0	103	150	77	22	22	374
1998	0	0	53	133	199	191	89	1	666
1999	0	0	26	140	305	106	53	0	630
2000	0	0	37	88	136	154	53	5	473
2001	0	5	20	126	234	213	29	1	628
2002	0	20	20	162	297	152	87	6	744
2003	0	2	1	69	163	223	66	4	528
2004	0	3	11	66	140	83	87	1	391
2005	0	3	4	211	228	200	119	32	797
2006	0	1	52	94	302	169	26	4	648
2007	0	8	48	132	201	196	90	37	712
2008	0	0	1	93	195	150	52	4	495
2009	0	0	14	114	80	123	32	0	363
2010	0	8	59	110	285	278	36	2	778
2011	0	1	27	94	336	188	48	9	703
2012	14	1	59	200	393	185	59	1	912
2013	0	4	35	101	220	174	82	5	619
2014	0	0	26	116	117	152	38	1	451
2015	0	0	28	74	187	149	122	2	562
Normal	**0**	**3.6**	**22.6**	**107.8**	**193.7**	**155.0**	**50.8**	**4.7**	**30-year Normal 538.2**

a 2001, 2007 includes March.

b October 1990 includes November.

Source: National Oceanographic and Atmospheric Administration, National Weather Service (1970-2015) http://www.nws.noaa.gov/climate/; Personal communication, Wisconsin State Climatology Office (1975 – 2015); Wisconsin Department of Administration, Heating, Cooling and Growing Degree Days (1970-2015) http://degreedays.wi.gov/.

Wisconsin Population-Weighted Cooling Degree Days, by Month,
10-year Average and 30-year Normal
1980-2015



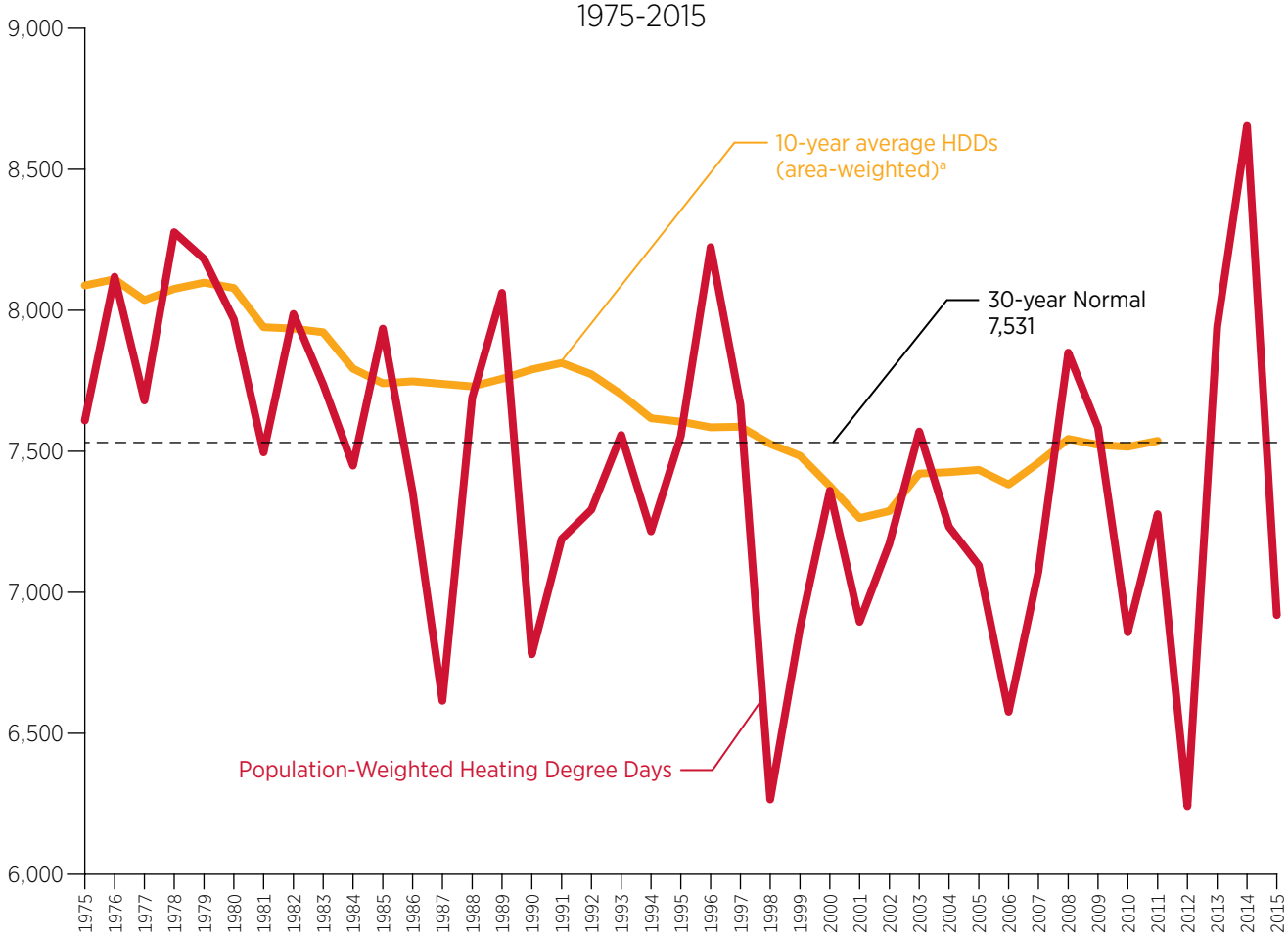
Wisconsin Population-Weighted Heating Degree Days, by Month, and 30-year Normal

1975-2015

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1975	1,375	1,246	1,212	790	221	74	23	17	258	412	713	1,268	7,609
1976	1,558	1,070	943	523	360	34	4	39	199	642	1117	1,630	8,119
1977	1,874	1,207	820	460	133	113	8	68	147	525	909	1,416	7,680
1978	1,651	1,450	1,139	667	289	85	26	16	119	521	912	1,402	8,277
1979	1,791	1,488	1,056	691	344	76	16	42	126	529	893	1,130	8,182
1980	1,465	1,378	1,141	582	240	117	8	14	177	634	867	1,345	7,968
1981	1,460	1,146	914	538	358	53	30	22	214	596	833	1,332	7,496
1982	1,796	1,324	1,090	713	177	166	4	60	211	444	902	1,100	7,987
1983	1,306	1,048	977	707	440	80	11	2	182	479	826	1,679	7,737
1984	1,545	1,001	1,180	580	350	25	12	15	217	405	887	1,232	7,449
1985	1,614	1,296	883	474	189	107	7	32	194	486	993	1,660	7,935
1986	1,436	1,269	915	487	252	94	11	54	153	476	999	1,210	7,356
1987	1,316	980	875	472	221	30	11	41	124	645	764	1,136	6,615
1988	1,576	1,401	981	583	201	54	4	18	120	652	805	1,295	7,690
1989	1,189	1,413	1,121	652	308	88	4	19	188	438	1,035	1,607	8,062
1990	1,141	1,119	880	532	361	52	19	19	131	497	708	1,321	6,780
1991	1,527	1,084	906	488	203	23	12	12	217	483	1,016	1,218	7,189
1992	1,256	1,045	988	670	257	104	39	65	185	522	918	1,244	7,293
1993	1,358	1,234	1,049	681	255	103	3	14	253	518	891	1,199	7,558
1994	1,734	1,350	938	552	264	53	11	46	88	369	733	1,078	7,216
1995	1,344	1,197	890	682	254	38	8	1	213	455	1,097	1,375	7,554
1996	1,537	1,291	1,168	704	397	77	24	8	163	481	1,062	1,312	8,224
1997	1,513	1,141	1,002	657	455	70	35	59	147	487	968	1,132	7,666
1998	1,279	893	962	527	163	109	2	2	75	405	734	1,114	6,265
1999	1,506	989	961	537	215	79	2	23	180	492	682	1,207	6,873
2000	1,428	1,057	759	626	245	86	26	15	189	384	909	1,636	7,360
2001	1,335	1,287	1,069	491	251	96	19	7	192	495	581	1,072	6,895
2002	1,160	1,000	1,129	604	416	68	1	8	106	615	903	1,163	7,173
2003	1,477	1,333	1,025	644	345	97	10	5	167	484	841	1,142	7,570
2004	1,570	1,199	876	555	324	98	22	78	79	429	749	1,253	7,232
2005	1,436	1,043	1,073	491	331	20	9	12	75	425	811	1,369	7,095
2006	1,044	1,203	949	441	265	46	3	7	190	599	761	1,068	6,576
2007	1,282	1,398	853	615	201	35	11	13	130	319	879	1,337	7,073
2008	1,451	1,378	1,111	579	350	42	7	11	107	478	861	1,477	7,850
2009	1,689	1,160	977	607	264	106	34	50	96	607	671	1,323	7,584
2010	1,447	1,161	811	421	232	37	1	5	176	396	795	1,375	6,858
2011	1,516	1,211	1,059	636	330	70	1	4	211	404	748	1,088	7,277
2012	1,242	1,036	541	550	166	36	0	17	194	530	826	1,103	6,241
2013	1,375	1,244	1,176	706	289	79	22	17	137	477	918	1,501	7,941
2014	1,694	1,502	1,223	666	271	44	24	10	496	496	1,073	1,155	8,654
2015	1,420	1,509	970	554	240	69	24	31	68	420	682	932	6,919
Normal	**1,451**	**1,195**	**1,000**	**597**	**300**	**79**	**15**	**28**	**172**	**505**	**875**	**1,313**	**30-year Normal 7,531**

Source: National Oceanographic and Atmospheric Administration, National Weather Service (1970-2015) http://www.nws.noaa.gov/climate/; Personal communication, Wisconsin State Climatology Office (1975 – 2015); Wisconsin Department of Administration, Heating, Cooling and Growing Degree Days (1970-2015) http://degreedays.wi.gov/.

Wisconsin Population-Weighted Heating Degree Days, by Month
10-year Average and 30-year Normal
1975-2015



a Revised.

Renewable Energy

Renewable energy is energy derived from a renewable resource such as: fuel cells, sunlight (solar), geothermal heat, wind, tides, water (hydro), and various forms of biomass, as defined in Wisconsin Statute 196.378 (1)(h). Approximately 15 percent of all electricity generated in the state of Wisconsin is from renewable resources, in correlation to Wisconsin's Renewable Portfolio Standard (RPS) which requires all Wisconsin electric providers to provide retail electricity customers with a certain percentage of electricity from renewable resources. The RPS created an overall statewide goal to generate 10 percent of all electricity using renewable resources by 2015. Approximately 2 percent of all electricity generated in the state of Wisconsin is from renewable resources with hydro and wind making up the bulk of renewable electricity generation at 40.3 percent and 26.8 percent, respectively; biomass accounts for 14.3 percent of generation, biogas 18.4 percent, and solar 0.2 percent.

Renewable energy is also heavily used by the transportation sector. Approximately 5 percent of auto fuel is supplied by ethanol processing plants within the state, where ethanol is blended with conventional gasoline for use in vehicles. Renewable energy purchases by electric utilities in Wisconsin have increased; in particular, imports of wind energy have increased by approximately 93 percent since 2005. This increase in renewable imports can be attributed – in part – to Wisconsin's geographic location – Wisconsin shares borders with 3 of the top 10 wind producing states: Iowa (#2), Minnesota (#6), and Illinois (#7).

As a cold weather state, Wisconsin uses a large amount of energy to heat buildings and water. Given this thermal energy demand, Focus on Energy – the state of Wisconsin's energy efficiency and renewable energy incentive program – provided rewards and incentives (through 2013) to help encourage residential renewable energy adoption, particularly adoption of geothermal heat pumps and solar water heaters.

▲ Turbines at Cedar Ridge Wind Farm tower over the landscape, capturing wind to convert into electricity.

▲ A solar panel shines at the Vernon Electric Cooperative Community Solar Ribbon Cutting Ceremony June 25, 2014. Photo credit: Dave Maxwell, Vernon Electric Cooperative.

▲ A greenhouse stays warm during Wisconsin's cold winter thanks to a biomass boiler installation.

Wisconsin Renewable Energy Production and Use, by Economic Sector

1975-2015 (Trillions of Btu)

Year	Commercial	Electric Utility	Industrial	Residential[a]	Transportation	Total Resource Use[b,r]	Total End-Use[b,r]
1975		5.06	12.34			17.40	12.34
1976		4.14	14.15			18.29	14.15
1977		4.78	15.26			20.04	15.26
1978		6.20	17.54			23.74	17.54
1979		6.11	16.66			22.77	16.66
1980		5.56	16.25			21.80	16.25
1981		5.72	17.02			22.74	17.02
1982		6.59	16.14		0.0230	22.76	16.16
1983		6.95	17.74		0.0090	24.70	17.75
1984		6.30	19.46		0.0170	25.78	19.48
1985		6.98	18.41		0.13	25.52	18.53
1986		6.58	18.63		0.13	25.34	18.76
1987		4.02	18.45		0.0860	22.55	18.54
1988		4.57	18.40		0.17	23.14	18.57
1989	0.018	4.87	19.85		0.40	25.13	20.27
1990	0.055	6.91	21.03		0.70	28.70	21.79
1991	0.074	8.55	20.44		1.73	30.79	22.24
1992	0.17	8.05	19.51		1.35	29.08	21.03
1993	0.28	8.08	19.84		1.07	29.27	21.20
1994	0.30	7.23	19.60		1.13	28.26	21.02
1995	0.55	7.71	15.22		4.10	27.58	19.87
1996	0.50	8.80	15.75		4.79	29.84	21.05
1997	0.48	8.15	15.84		4.86	29.32	21.17
1998	0.57	5.89	15.78		6.04	28.28	22.39
1999	0.62	6.80	14.53		6.36	28.32	21.52
2000	0.48	7.02	14.91		7.92	30.32	23.31
2001	0.38	7.63	14.84		7.25	30.11	22.48
2002	0.39	9.15	15.96		7.45	32.94	23.80
2003	0.43	7.09	16.13		8.52	32.18	25.08
2004	0.39	7.92	17.53	0.00523	8.65	34.49	26.57
2005	0.36	7.25	15.11	0.00718	10.38	33.11	25.86
2006	0.45	7.42	17.44	0.0115	11.01	36.32	28.90
2007	0.79	6.23	20.23	0.0150	13.61	40.87	34.64
2008	6.24	8.32	15.81	0.0108	18.31	48.70	40.38
2009	6.68	10.54	16.28	0.0145	19.39	52.89	42.35
2010	6.77	12.57	18.34	0.0220	21.55	59.26	46.69
2011	7.53	13.59	19.73	0.0161	19.17	60.02	46.43
2012	8.08	12.83	18.97	0.0226	25.11	65.01	52.18
2013	8.19	14.44	26.22	0.0210	24.87	73.74	59.30
2014	7.89	16.56	26.33	0.0223	23.85	74.66	58.10
2015[p]	8.94	14.97	25.46	0.0142	25.11	74.50	59.53

a Residential sector wood-burn discontinued, Residential Wood Use Model no longer in use.

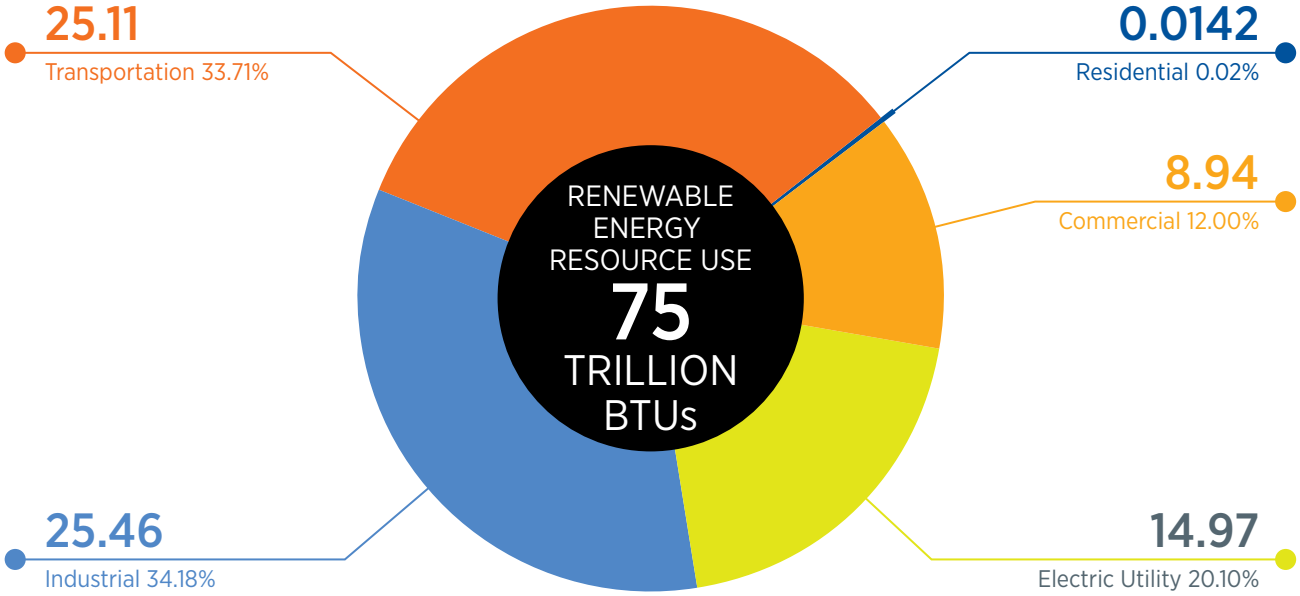
p Preliminary.

b Does not include non-metered resources (e.g. estimated passive solar), and resources not considered renewable under Wisconsin law (e.g. municipal solid waste or other refuse derived fuels e.g. railroad ties, tires).

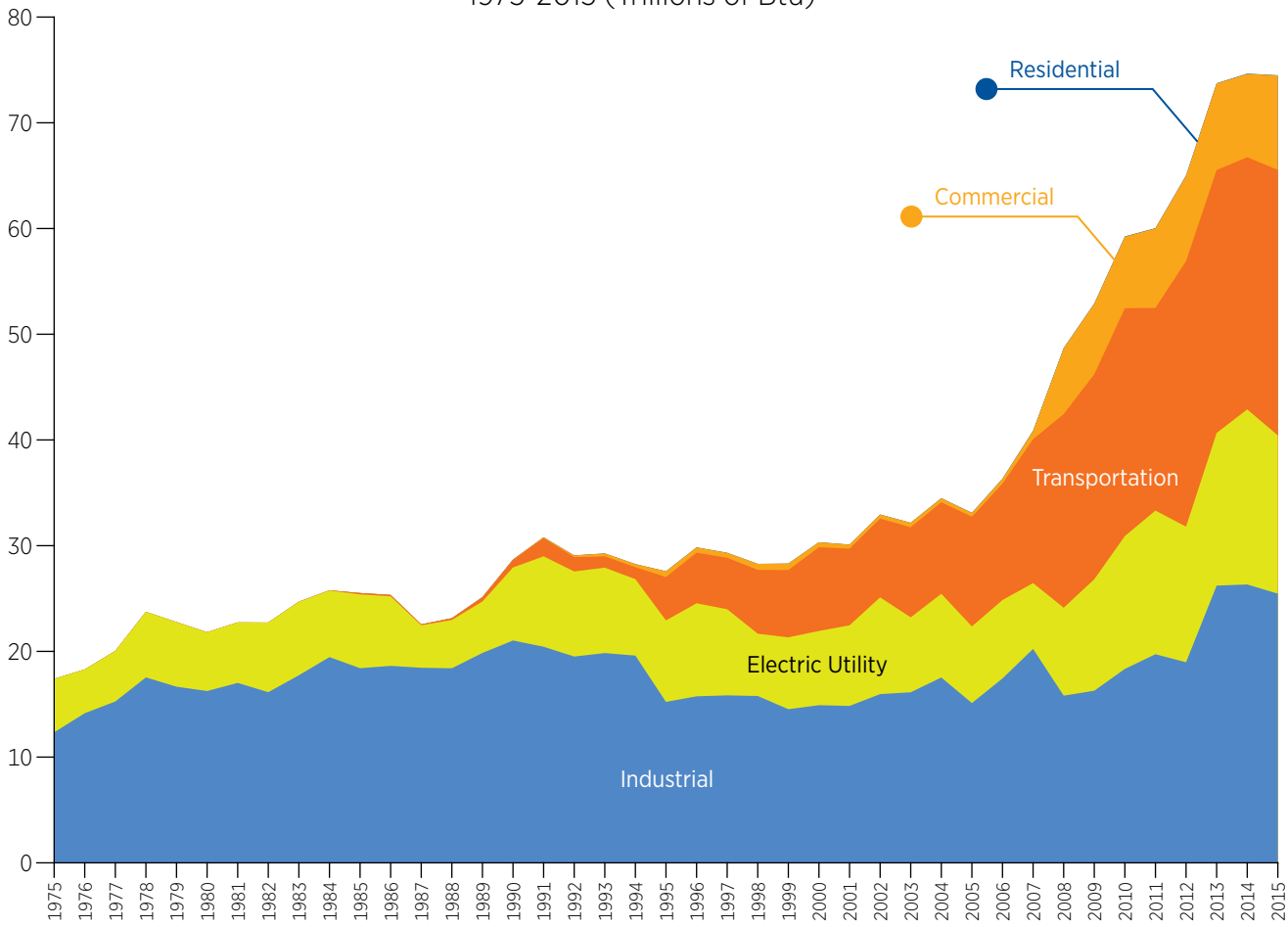
r Historical revision beginning in 2008 to all fuels – except hydro – due to revision in methodology and data sources.

Source: Personal communication, Wisconsin utilities, landfills, waste water treatment plants, public schools (2007-2015); Public Service Commission of Wisconsin, Annual Reports, Investor Owned Utilities: Investor Owned Utilities (1970-2015) http://apps.psc.wi.gov/vs2015/annualReports/content/listingIOU.aspx, Renewable Portfolio Summary Report (2012-2015) https://psc.wi.gov/Pages/Programs/RpsCompliance.aspx, Strategic Energy Assessment 2024 (2018) report not yet published; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1972-2015) Unpublished; Wisconsin Department of Revenue, Gasohol Report (2008-2015) unpublished.

Wisconsin Renewable Energy Production and Use, by Economic Sector
2015 (Trillions of Btu and Percent of Total)



Wisconsin Renewable Energy Production and Use, by Economic Sector
1975-2015 (Trillions of Btu)



Wisconsin Renewable Energy Use, by Fuel

1975-2015 (Trillions of Btu)

Year	Biogas	Biomass[a]	Ethanol	Hydro	Solar	Wind	Total[b]
1975		11.90		5.50			17.40
1976		14.00		4.29			18.29
1977		14.60		5.44			20.04
1978		16.90		6.84			23.74
1979		16.20		6.57			22.77
1980		15.70		6.10			21.80
1981		16.60		6.14			22.74
1982		15.40	0.0230	7.33			22.76
1983		17.10	0.0088	7.60			24.70
1984		18.80	0.0166	6.97			25.78
1985		17.60	0.13	7.79			25.52
1986		17.92	0.13	7.29			25.34
1987		18.11	0.0864	4.36			22.55
1988		19.04	0.17	3.93			23.14
1989		20.56	0.40	4.17			25.13
1990		21.13	0.70	6.88			28.70
1991		20.47	1.73	8.59			30.79
1992		19.53	1.35	8.20			29.08
1993		19.71	1.07	8.49			29.27
1994		19.53	1.13	7.61			28.26
1995	1.54	13.82	4.10	8.12			27.58
1996	1.58	14.27	4.79	9.20			29.84
1997	1.70	14.29	4.86	8.48			29.32
1998	2.12	14.16	6.04	5.96		0.00762	28.28
1999	2.06	13.04	6.36	6.77		0.08102	28.32
2000	2.76	12.69	7.92	6.79		0.16	30.32
2001	2.85	12.75	7.25	7.02		0.24	30.11
2002	3.74	12.79	7.45	8.58		0.38	32.94
2003	3.93	13.07	8.52	6.30		0.36	32.18
2004	4.45	14.26	8.65	6.77		0.36	34.49
2005	3.14	13.95	10.38	5.31	0.00652	0.32	33.11
2006	4.51	14.87	11.01	5.57	0.01227	0.35	36.32
2007	5.78	16.01	13.61	5.08	0.01674	0.38	40.87
2008[r]	13.19	10.04	18.31	5.48	0.01502	1.66	48.70
2009	14.14	10.60	19.39	5.16	0.02041	3.59	52.89
2010	14.26	11.92	21.55	7.78	0.02782	3.72	59.26
2011	15.93	12.91	19.17	7.94	0.02515	4.06	60.02
2012	16.66	12.15	25.11	5.70	0.03582	5.36	65.01
2013	15.88	20.33	24.87	7.31	0.03373	5.33	73.74
2014	15.89	20.38	23.85	8.97	0.03987	5.53	74.66
2015[p]	15.83	19.53	25.11	8.48	0.03971	5.51	74.50

a Residential sector wood-burn discontinued, Residential Wood Use Model no longer in use.

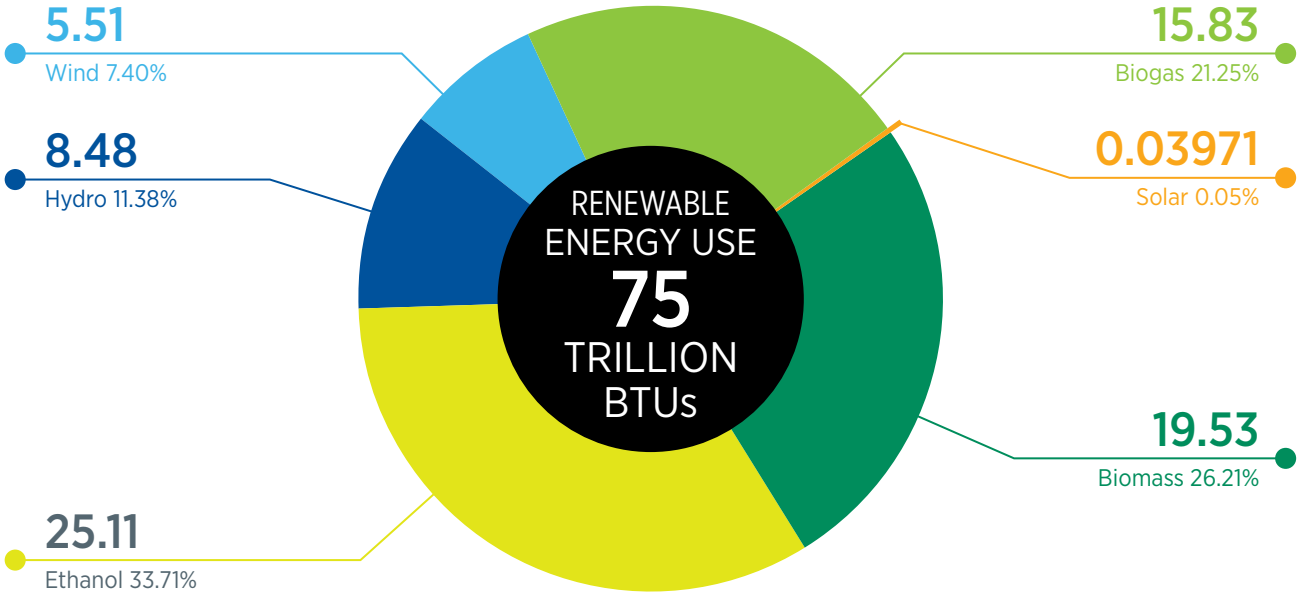
b Does not include estimated passive solar, municipal solid waste or other refuse derived fuels, (e.g., railroad ties, tires) except where defined by law as a renewable fuel.

p Preliminary.

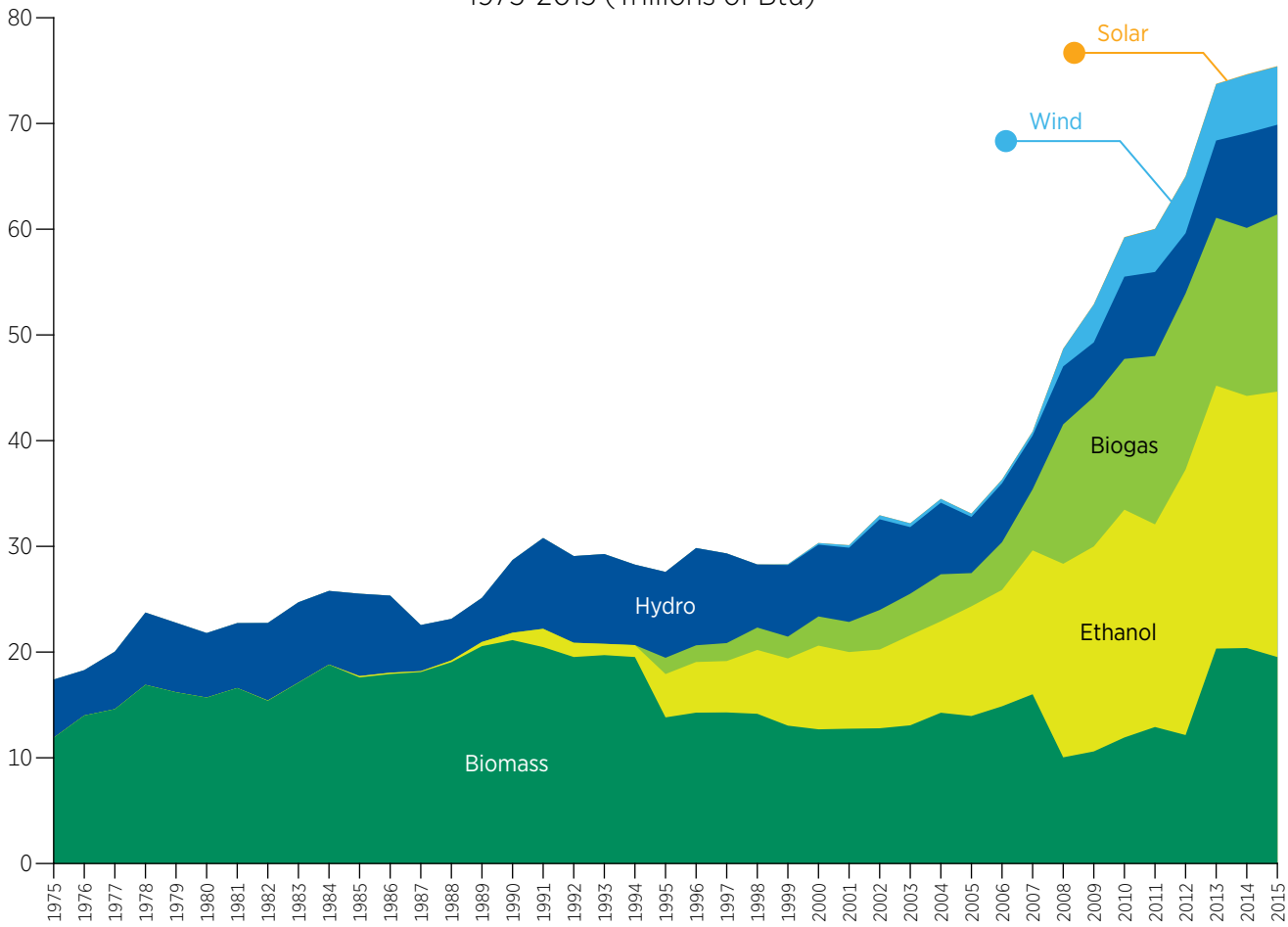
r Historical revision beginning in 2008 to all fuels – except hydro – due to revision in methodology and data sources.

Source: Personal communication, Wisconsin utilities, landfills, waste water treatment plants, public schools (2007-2015); Public Service Commission of Wisconsin, Annual Reports, Investor Owned Utilities: Investor Owned Utilities (1970-2015) http://apps.psc.wi.gov/vs2015/annualReports/content/listingIOU.aspx, Renewable Portfolio Summary Report (2012-2015) https://psc.wi.gov/Pages/Programs/RpsCompliance.aspx, Strategic Energy Assessment 2024 (2018) report not yet published; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1972-2015) Unpublished; Wisconsin Department of Revenue, Gasohol Report (2008-2015) unpublished.

Wisconsin Renewable Energy Use, by Fuel
2015 (Trillions of Btu and Percent of Total)



Wisconsin Renewable Energy Use, by Fuel
1975-2015 (Trillions of Btu)



Wisconsin Renewable Energy Electricity Generation, by Type of Fuel

1990-2015 (Millions of kWh)

Year	Biogas	Biomass	Hydro	Solar	Wind	Total[a]
1990		68.15	2,014.40			2,082.55
1991		70.55	2,516.60			2,587.15
1992		71.20	2,401.60			2,472.80
1993		47.98	2,486.60			2,534.58
1994		58.15	2,228.30			2,286.45
1995	110.13	54.19	2,378.50			2,542.82
1996	112.76	56.51	2,696.00			2,865.27
1997	121.20	57.47	2,483.30			2,661.97
1998	151.16	60.86	1,747.40		2.23	1,961.65
1999	147.37	68.63	1,984.60		23.74	2,224.35
2000	197.19	78.12	1,990.80		46.64	2,312.76
2001	203.28	83.05	2,056.20		70.17	2,412.69
2002	267.28	70.59	2,515.00	0.03	111.12	2,964.02
2003	280.52	79.42	1,843.30	0.12	104.02	2,307.39
2004	317.52	98.11	1,980.70	0.30	105.31	2,501.94
2005	224.31	148.20	1,550.70	0.03	92.60	2,015.83
2006	322.18	815.83	1,626.94	0.02	101.81	2,866.78
2007[a]	412.61	914.42	1,483.22	0.03	109.30	2,919.59
2008[r]	937.87	698.58	1,585.59	4.40	487.35	3,713.79
2009	998.49	1,017.23	1,460.93	6.04	1,050.58	4,533.27
2010	1,006.50	912.98	2,216.93	8.15	1,090.96	5,235.52
2011	1,120.16	1,080.33	2,258.88	7.37	1,188.81	5,655.55
2012	1,167.65	1,053.25	1,608.19	10.50	1,569.83	5,409.42
2013	1,108.34	991.70	2,069.10	9.88	1,561.12	5,740.15
2014	1,109.76	1,108.83	2,556.90	11.68	1,621.63	6,408.80
2015[p]	1,108.79	859.24	2,431.23	11.64	1,615.29	6,026.19

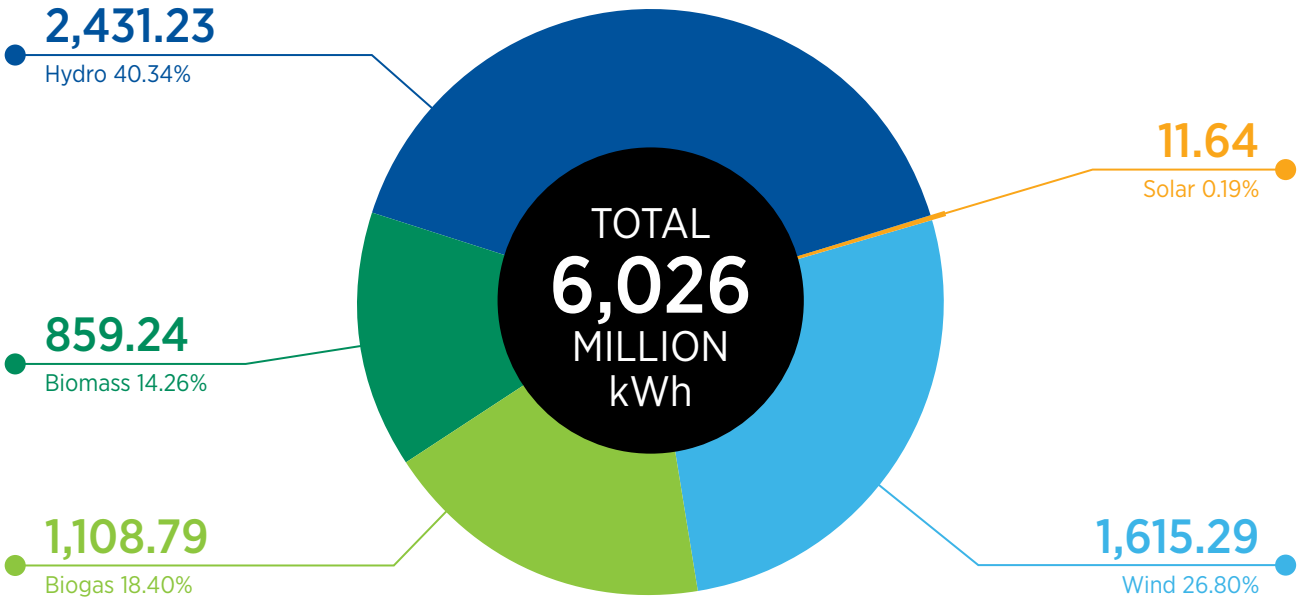
a Does not include non-metered resources (e.g. estimated passive solar), and resources not considered renewable under Wisconsin law (e.g. municipal solid waste or other refuse derived fuels e.g. railroad ties, tires). Historically revised in 2015 due to change in methodology.

p Preliminary.

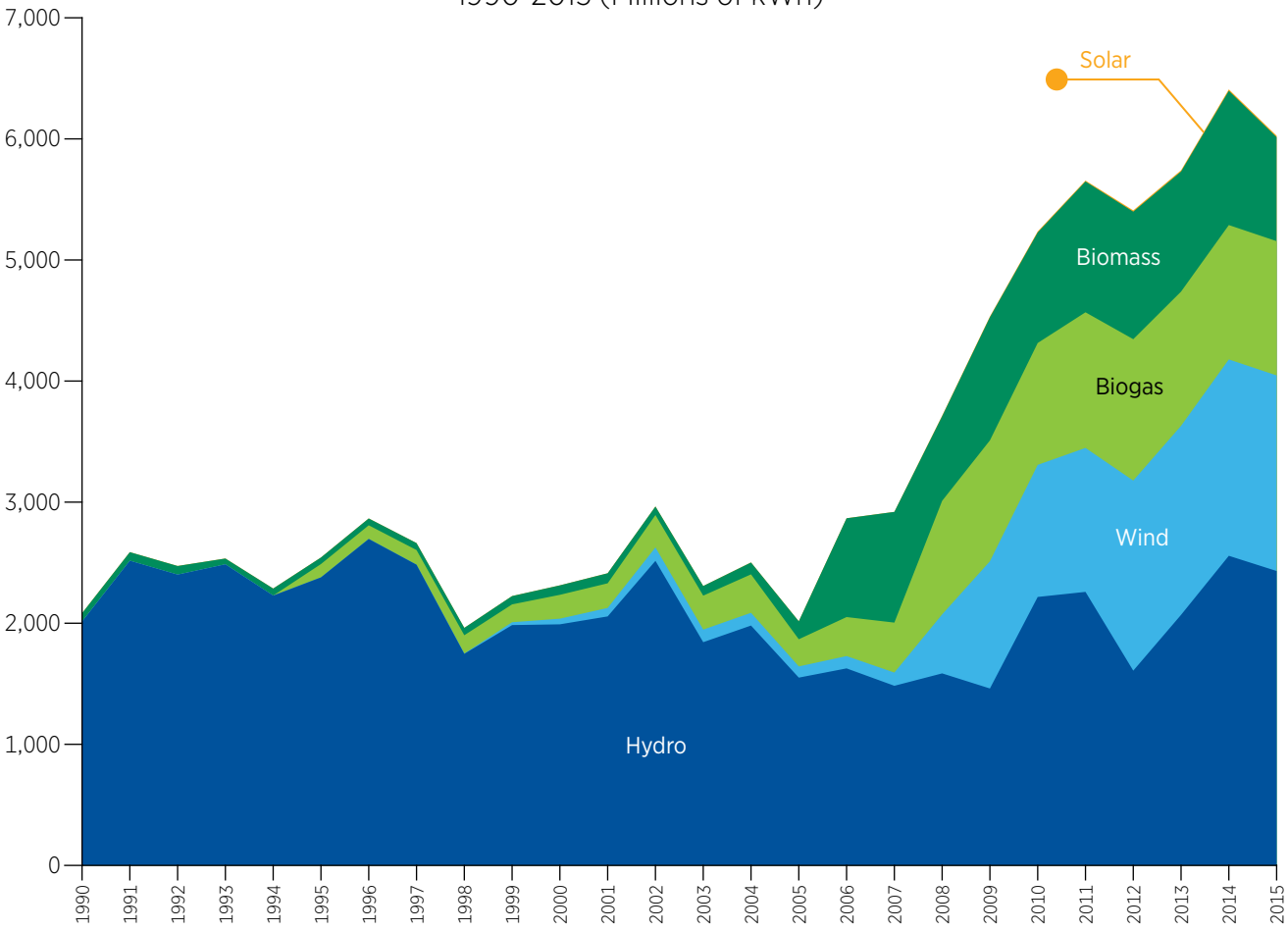
r Historical revision beginning in 2008 to all fuels – except hydro – due to revision in methodology and data sources.

Source: Energy Center of Wisconsin, Agricultural Biogas Casebook http://www.ecw.org/publications/agricultural-biogas-casebooks; Personal communication, Wisconsin utilities, landfills, waste water treatment plants, public schools (2007-2015); Public Service Commission of Wisconsin, Annual Reports, Investor Owned Utilities: Investor Owned Utilities (1970-2015) http://apps.psc.wi.gov/vs2015/annualReports/content/listingIOU.aspx, Strategic Energy Assessment (2008-2015) Unpublished data; U.S. Department of Agriculture, Rural Electrification Administration, Annual Statistical Report, REA Bulletin 1-1 (1971-1994).

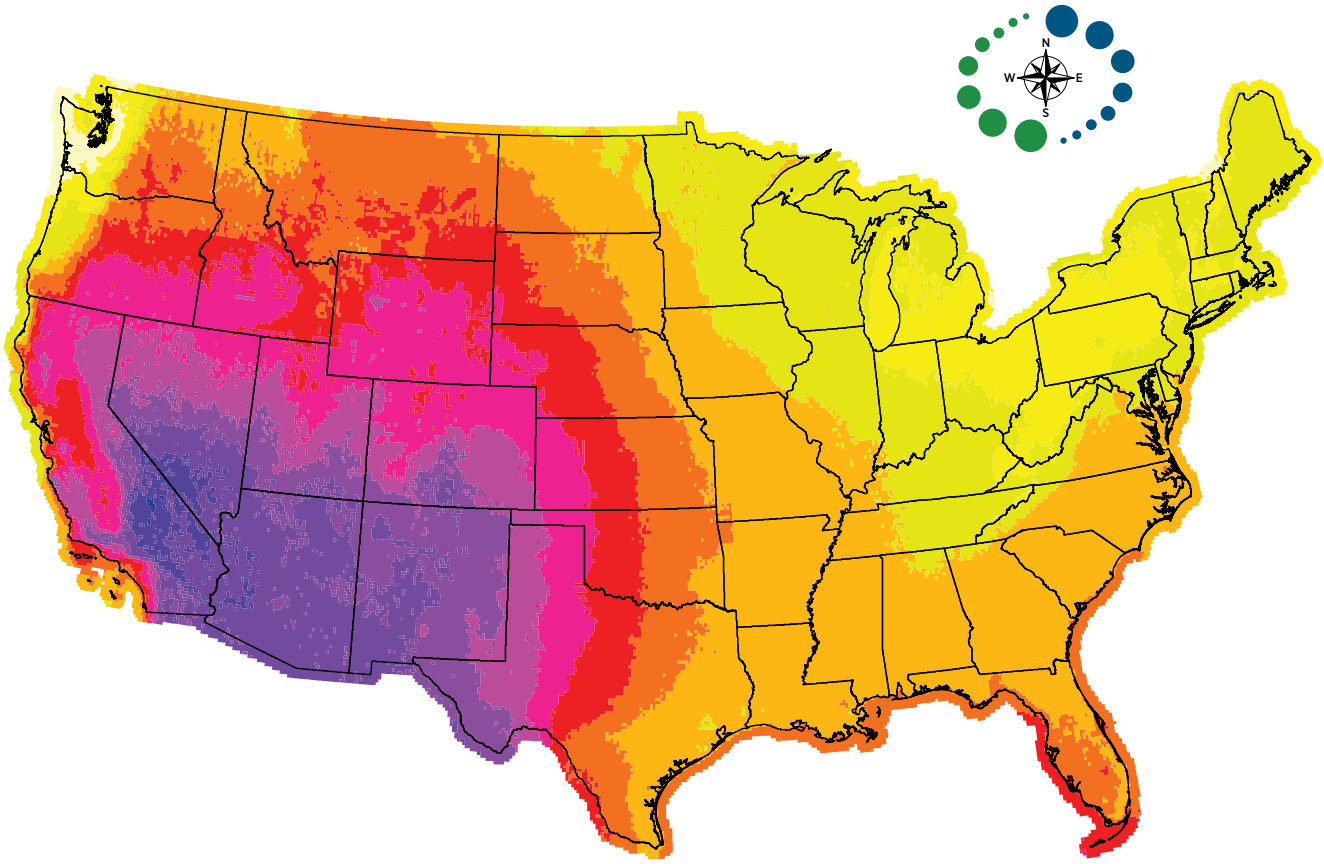
Wisconsin Renewable Energy Electricity Generation, by Type of Fuel
2015 (Millions of kWh and Percent of Total)



Wisconsin Renewable Energy Electricity Generation, by Type of Fuel
1990-2015 (Millions of kWh)



Estimated Solar Insolation for the United States, Two-Axis Tracker



Watt-hours Per Square Meter Per Day

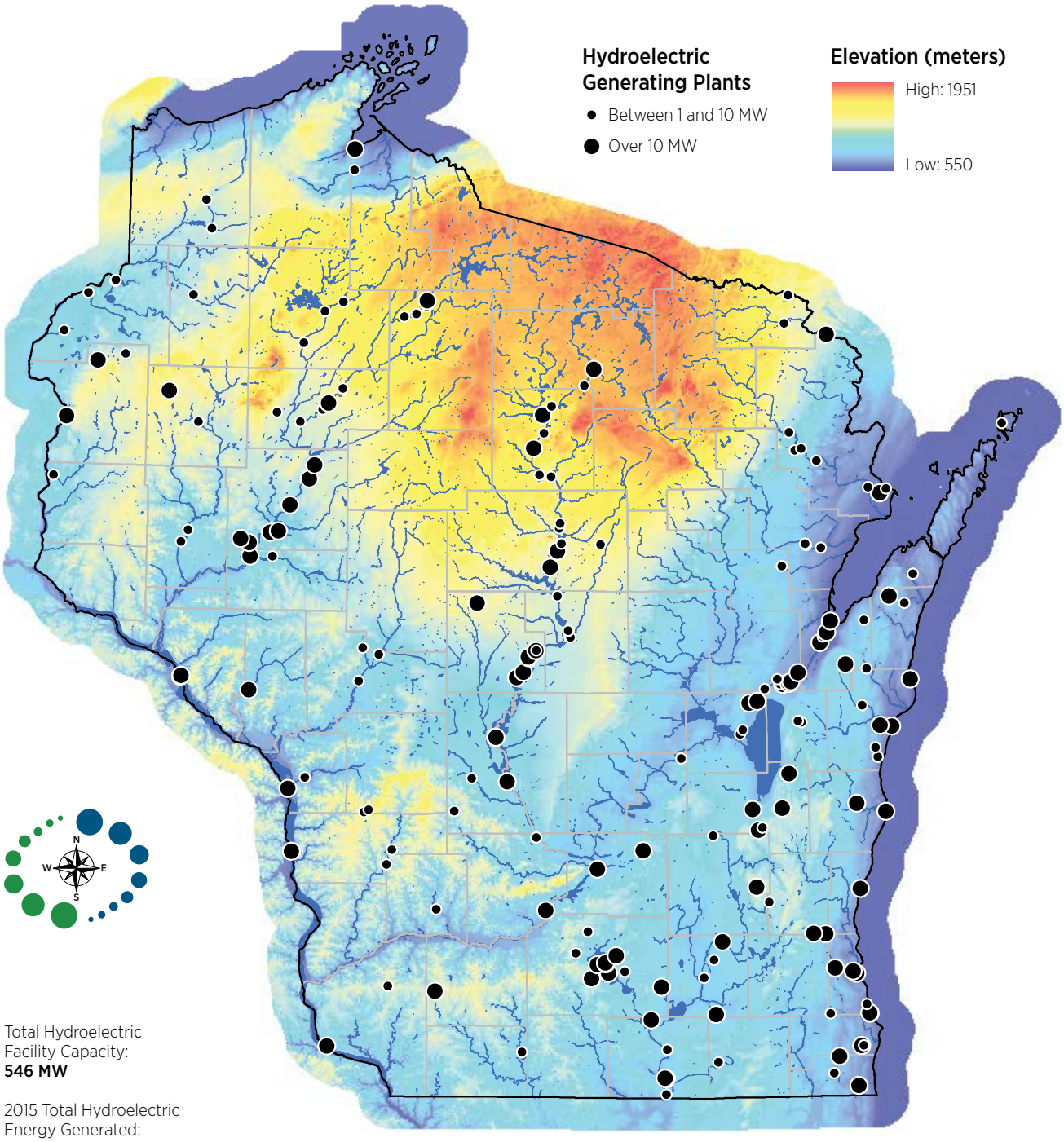
- Less than 2,500
- 2,500 – 3,000
- 3,000 – 3,500
- 3,500 – 4,000
- 4,000 – 4,500
- 4,500 – 5,000
- 5,000 – 5,500
- 5,500 – 6,000
- 6,000 – 6,500
- 6,500 – 7,000
- 7,000 – 7,500
- 7,500 – 8,000
- Above 8,000

Source: National Renewable Energy Laboratory http://www.nrel.gov/

Purpose: Provide information on the solar resource potential for the 48 contiguous states. The insolation values represent the average solar energy available to a concentrating collector on a 2-axis tracker, such as a dish or a power tower.

Hydroelectric Generation Sites in Wisconsin

2015



Total Hydroelectric Facility Capacity:
546 MW

2015 Total Hydroelectric Energy Generated:
2,431,230 MWhs

(Capacity and energy generated include hydroelectric facilities owned by utilities, merchants, cooperatives, and other nonutilities.)

Source: Public Service Commission of Wisconsin, Department of Administration.

Wisconsin Electric Utility and Non-Utility Hydroelectric Generation

1975-2015 (Millions of kWh)

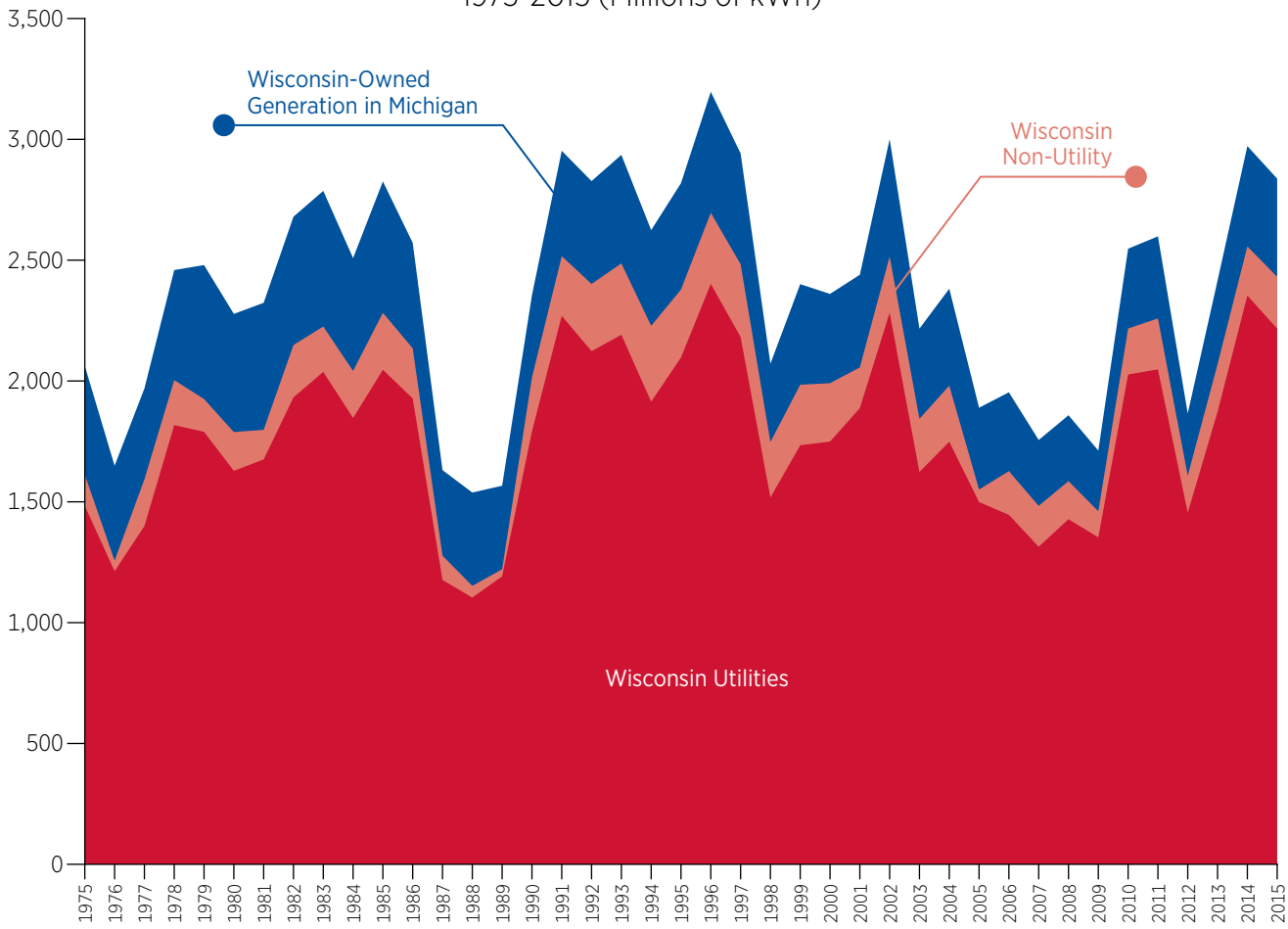
Year	Wisconsin Operated Utility Plant Location		Wisconsin Owned Generation	Wisconsin Non Utility[b]	Total Wisconsin Hydroelectric Generation
	Wisconsin[a]	Michigan			
1975	1,482.9	450.3	1,933.2	129.4	1,612.3
1976	1,213.0	392.5	1,605.5	43.7	1,256.7
1977	1,399.8	376.0	1,775.8	193.3	1,593.1
1978	1,817.4	455.3	2,272.7	186.3	2,003.7
1979	1,789.6	554.4	2,344.0	135.7	1,925.3
1980	1,628.3	488.9	2,117.2	160.4	1,788.7
1981	1,675.2	525.7	2,200.9	122.6	1,797.8
1982	1,932.2	530.9	2,463.1	216.6	2,148.8
1983	2,037.6	561.2	2,598.8	187.9	2,225.5
1984	1,846.8	466.8	2,313.6	194.8	2,041.6
1985	2,046.3	543.6	2,589.9	235.9	2,282.2
1986	1,927.7	436.3	2,364.0	207.7	2,135.4
1987	1,176.6	354.1	1,530.7	100.4	1,277.0
1988	1,103.9	386.2	1,490.1	48.3	1,152.2
1989	1,191.4	345.8	1,537.2	29.4	1,220.8
1990	1,791.0	340.2	2,131.2	223.4	2,014.4
1991	2,269.6	436.0	2,706.0	247.0	2,516.6
1992	2,123.4	425.6	2,549.0	278.2	2,401.6
1993	2,191.1	449.1	2,640.1	295.5	2,486.6
1994	1,914.4	395.9	2,310.3	313.9	2,228.3
1995	2,097.1	440.1	2,537.2	281.4	2,378.5
1996	2,401.9	500.7	2,902.6	294.1	2,696.0
1997	2,182.2	458.5	2,640.7	301.1	2,483.3
1998	1,517.8	324.0	1,841.8	229.6	1,747.4
1999	1,734.0	416.1	2,150.1	250.6	1,984.6
2000	1,749.4	369.6	2,119.0	241.4	1,990.8
2001	1,887.6	383.3	2,270.9	168.6	2,056.2
2002	2,282.9	485.8	2,768.7	232.1	2,515.0
2003	1,623.4	373.4	1,996.8	219.9	1,843.3
2004	1,748.4	401.0	2,149.4	232.3	1,980.7
2005	1,499.0	338.6	1,837.6	51.7	1,550.7
2006	1,446.0	326.3	1,772.3	180.9	1,626.9
2007	1,314.0	272.6	1,586.6	169.2	1,483.2
2008	1,428.0	272.6	1,700.6	157.6	1,585.6
2009	1,352.7	251.2	1,603.9	108.2	1,460.9
2010	2,026.7	330.3	2,356.9	190.3	2,216.9
2011	2,048.1	339.6	2,387.7	210.8	2,258.9
2012	1,455.0	257.4	1,712.4	153.2	1,608.2
2013	1,872.0	346.3	2,218.2	197.1	2,069.1
2014	2,353.6	415.2	2,768.8	203.3	2,556.9
2015	2,216.6	406.1	2,622.8	214.6	2,431.2

a Includes Wisconsin power cooperatives and Independent Power Producers.

b May differ with other hydroelectric data due to different data sources.

Source: Public Service Commission of Wisconsin, Accounts and Finance Division, Generating Plants Operated by Wisconsin Electric Utilities Bulletin #46 (1970-1994), Annual Reports: Investor Owned Utilities (2005-2015) Unpublished data; U.S. Department of Agriculture, Rural Electrification Administration, Annual Statistical Report, REA Bulletin 1-1 (1971-1994); U.S. Energy Information Administration, Electric Power Monthly (1990-2008) http://www.eia.doe.gov/cneaf/electricity/epa/epa_sprdshts.html; Wisconsin Department of Administration, Division of Energy Wisconsin Hydroelectric Generation Model (1994) unpublished.

Wisconsin Electric Utility and Non-Utility Hydroelectric Generation
1975-2015 (Millions of kWh)



Wisconsin Wood Use, by Economic Sector

1975-2015 (Trillions of Btu)

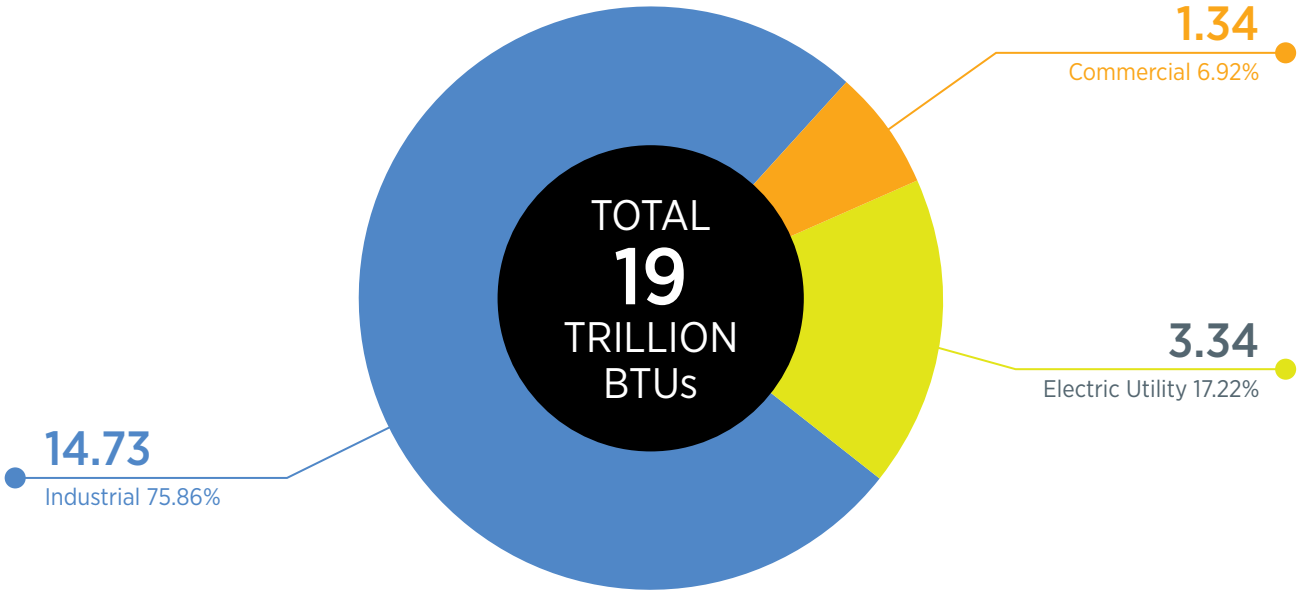
Year	Commercial[a]	Electric Utility		Industrial	Total[b]
		tBtu	Tons		
1975				11.90	11.90
1976		0.0051	567	14.00	14.01
1977		0.0073	814	14.60	14.61
1978		0.0158	1,750	16.90	16.92
1979		0.0871	9,676	16.20	16.29
1980		0.6865	76,282	15.70	16.39
1981		0.7088	78,750	16.60	17.31
1982		1.03	114,162	15.40	16.43
1983		1.01	112,117	17.10	18.11
1984		1.15	127,881	18.80	19.95
1985		1.40	155,717	17.60	19.00
1986		1.77	196,620	17.40	19.17
1987		2.23	247,498	17.30	19.53
1988		2.36	262,218	18.10	20.46
1989	0.02	2.54	282,124	19.50	22.06
1990	0.06	2.70	299,464	20.00	22.75
1991	0.07	2.67	296,197	19.30	22.04
1992	0.17	2.68	297,436	18.30	21.14
1993	0.28	2.77	307,478	18.60	21.65
1994	0.30	3.41	379,106	18.50	22.21
1995	0.55	2.94	327,201	12.68	16.18
1996	0.50	3.06	339,803	13.12	16.68
1997	0.48	2.74	304,618	13.05	16.27
1998	0.57	3.01	334,231	12.82	16.40
1999	0.62	2.97	330,491	11.54	15.13
2000	0.48	2.67	296,739	11.24	14.39
2001	0.38	2.71	301,580	11.33	14.42
2002	0.37	2.55	283,774	11.51	14.44
2003	0.36	2.41	267,446	11.69	14.46
2004	0.32	2.19	242,973	12.70	15.21
2005	0.27	2.28	253,638	12.16	14.72
2006	0.24	2.60	288,907	11.05	13.89
2007	0.44	2.84	315,811	12.19	15.47
2008	0.54	3.08	342,684	6.77	10.39
2009	0.89	3.26	362,471	6.01	10.16
2010	0.38	3.43	380,600	8.14	11.95
2011	0.28	3.34	371,212	8.69	12.31
2012	0.19	3.55	394,486	8.04	11.78
2013	0.42	3.21	356,604	15.89	19.51
2014	0.50	2.72	302,271	15.35	18.57
2015	1.34	3.34	371,552	14.73	19.42

a Figures previously assigned to Electric Utility now categorized with biomass for non-electric production. 1975 – 1988 revised.

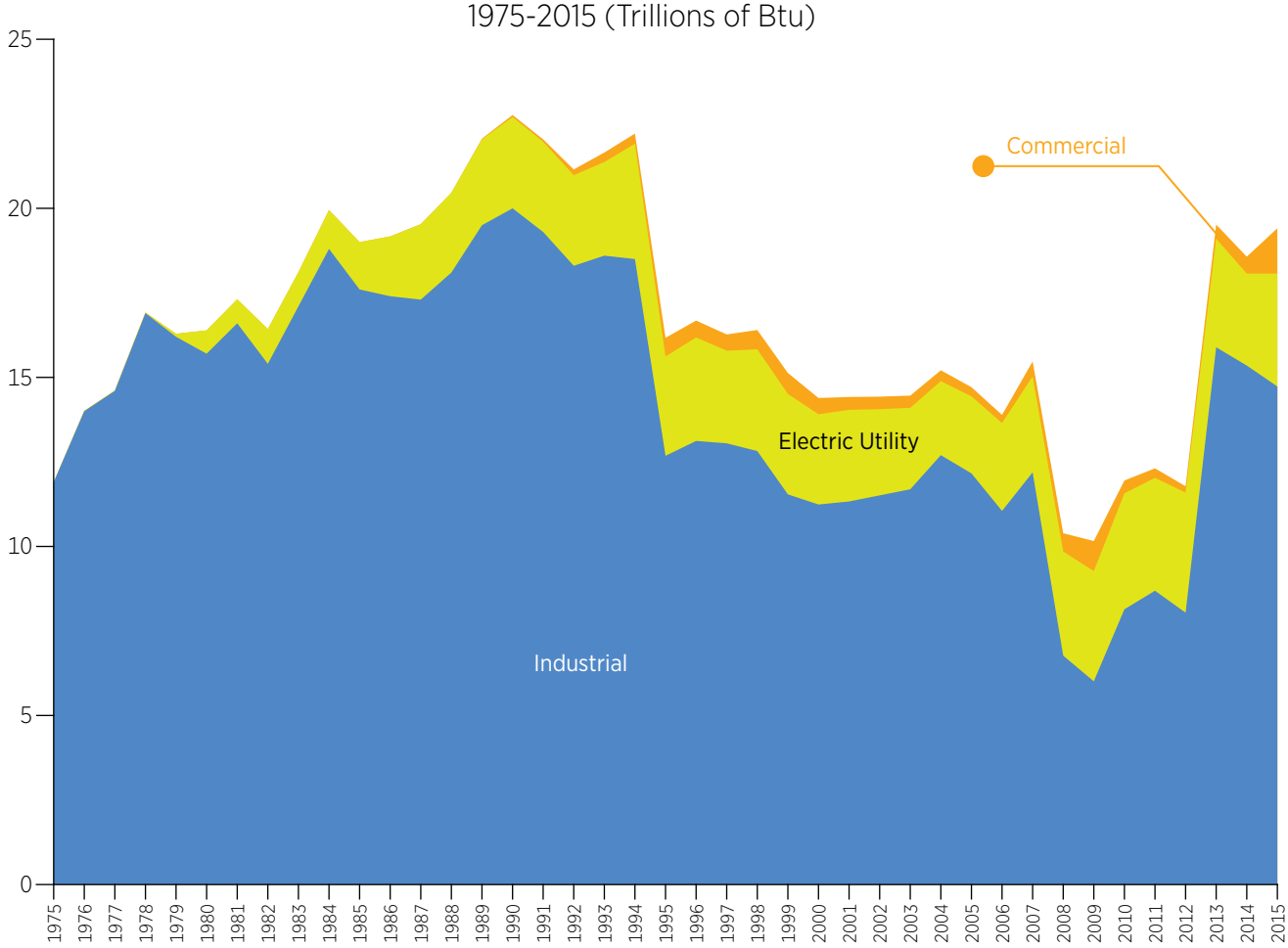
b Residential sector wood-burn discontinued, Residential Wood Use Model no longer in use.

Source: Personal communication, Wisconsin utilities, landfills, waste water treatment plants, public schools (2007-2015); Division of Energy Wisconsin Residential Wood Energy Model (1981-2012) Unpublished; Wisconsin Department of Administration, Energy Use in State Facilities Report (2012-2015); Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1972-2015) Unpublished data; U.S. Energy Information Administration, Estimates of U.S. Wood Energy Consumption from 1949 to 1981 (2013); USDA Forest Service, Residential Fuelwood Consumption and Production in Wisconsin (1994); Directory of Wisconsin Wood Burning Facilities (1995).

Wisconsin Wood Use, by Economic Sector
2015 (Trillions of Btu and Percent of Total)



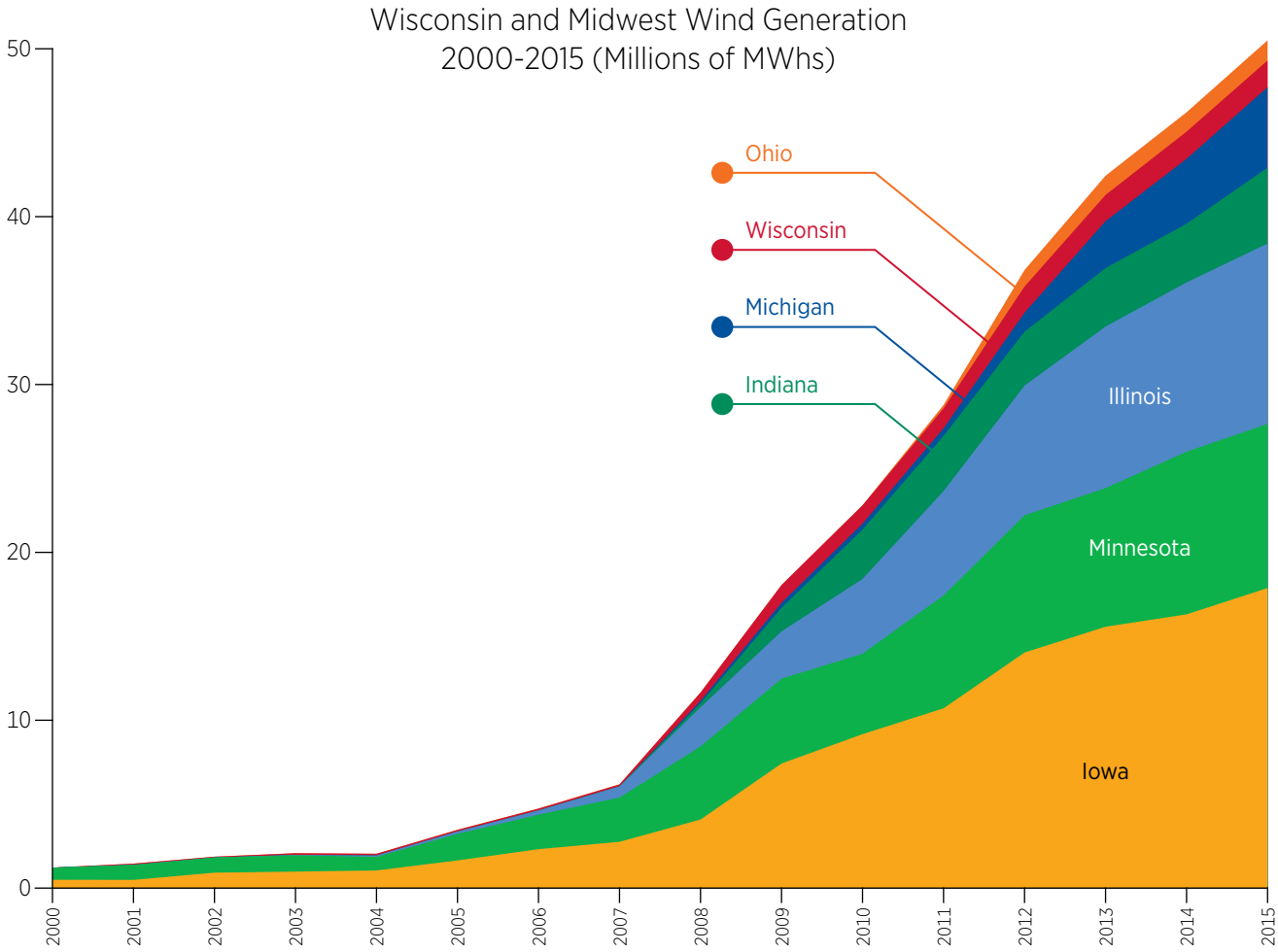
Wisconsin Wood Use, by Economic Sector
1975-2015 (Trillions of Btu)



Wisconsin, Midwest and U.S. Wind Generation

2000-2015 (MWhs)

Year	Wisconsin[a]	Illinois	Indiana	Iowa	Michigan	Minnesota	Ohio	Midwest Total	United States
2000	2,728	0	0	493,820	0	724,524	0	1,221,072	5,593,261
2001	72,284	0	0	487,864	280	897,018	0	1,457,446	6,737,332
2002	46,180	0	0	918,835	329	905,839	0	1,871,183	10,354,279
2003	97,580	18,024	0	981,970	2,660	977,760	0	2,077,994	11,187,467
2004	103,563	78,073	0	1,049,952	1,875	812,371	0	2,045,833	14,143,741
2005	92,544	141,146	0	1,647,134	1,848	1,582,477	13,268	3,478,417	17,810,549
2006	101,376	254,571	0	2,317,821	2,212	2,054,947	14,401	4,745,328	26,589,137
2007	109,283	664,427	0	2,756,676	2,723	2,638,812	14,748	6,186,669	34,449,927
2008	487,141	2,336,996	238,356	4,083,787	141,182	4,354,620	15,084	11,657,165	55,363,100
2009	1,051,965	2,819,532	1,403,192	7,420,520	300,172	5,053,022	14,114	18,062,517	73,886,132
2010	1,088,464	4,453,634	2,934,043	9,170,337	360,340	4,791,723	12,576	22,811,117	94,652,246
2011	1,187,730	6,213,132	3,285,411	10,709,177	456,474	6,725,695	198,443	28,776,062	120,176,599
2012	1,557,578	7,726,809	3,210,104	14,032,492	1,131,688	8,176,217	985,485	36,820,373	140,821,715
2013	1,557,924	9,625,229	3,481,093	15,568,406	2,799,624	8,258,751	1,145,901	42,436,928	167,839,745
2014	1,618,001	10,082,894	3,496,042	16,306,755	3,868,118	9,691,019	1,153,418	46,216,246	181,655,282
2015	1,589,381	10,747,270	4,515,147	17,872,632	4,796,898	9,778,845	1,203,008	50,503,181	190,718,548



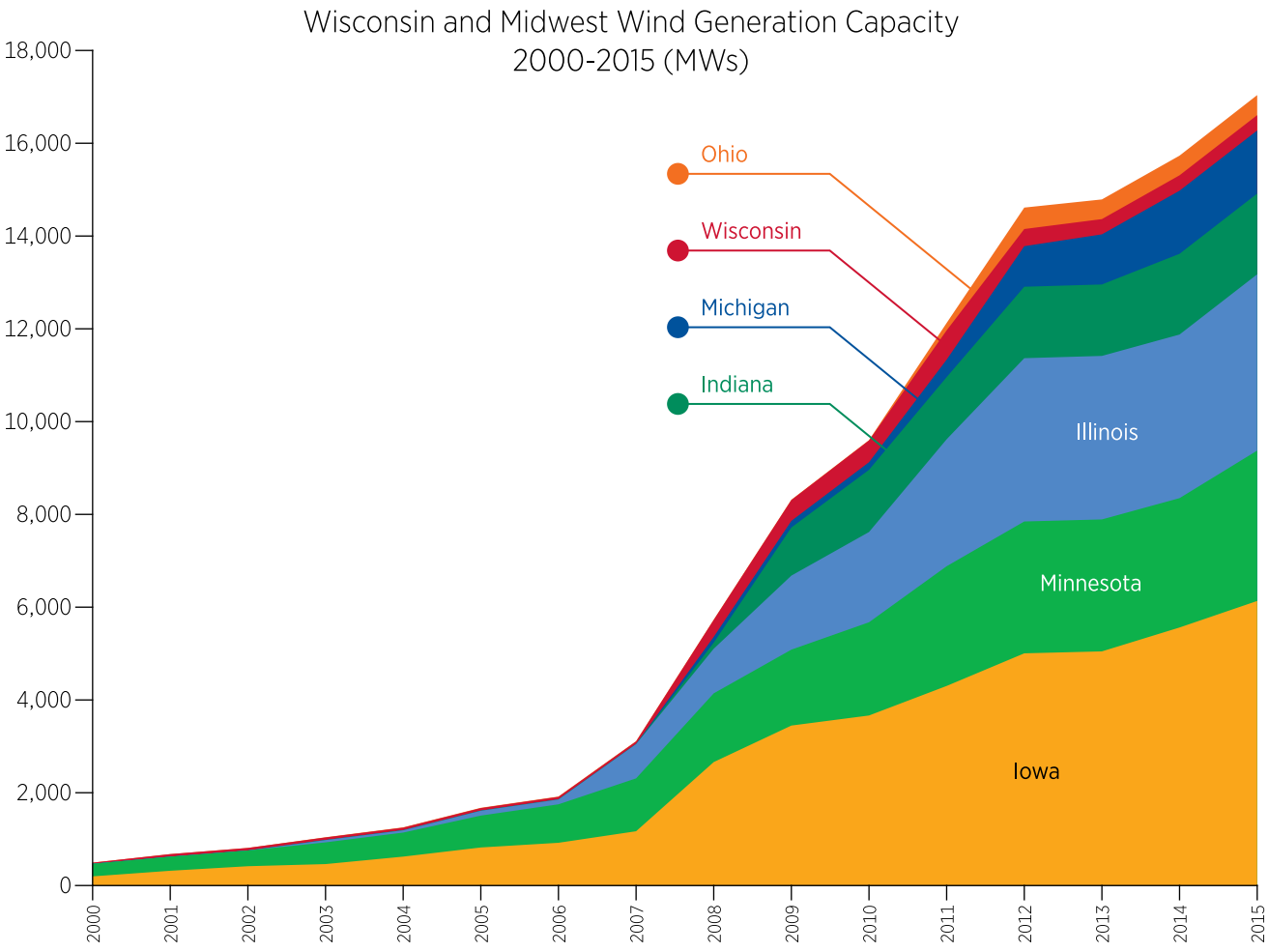
a Differences in wind generation data in book due to different data sources.

Source: U.S. Energy Information Administration, State Energy Data System (2000–2015) http://www.eia.gov/state/seds/seds-data-complete.cfm?sid=US.

Wisconsin, Midwest, and U.S. Wind Generation Capacity

2000-2015 (MWs)

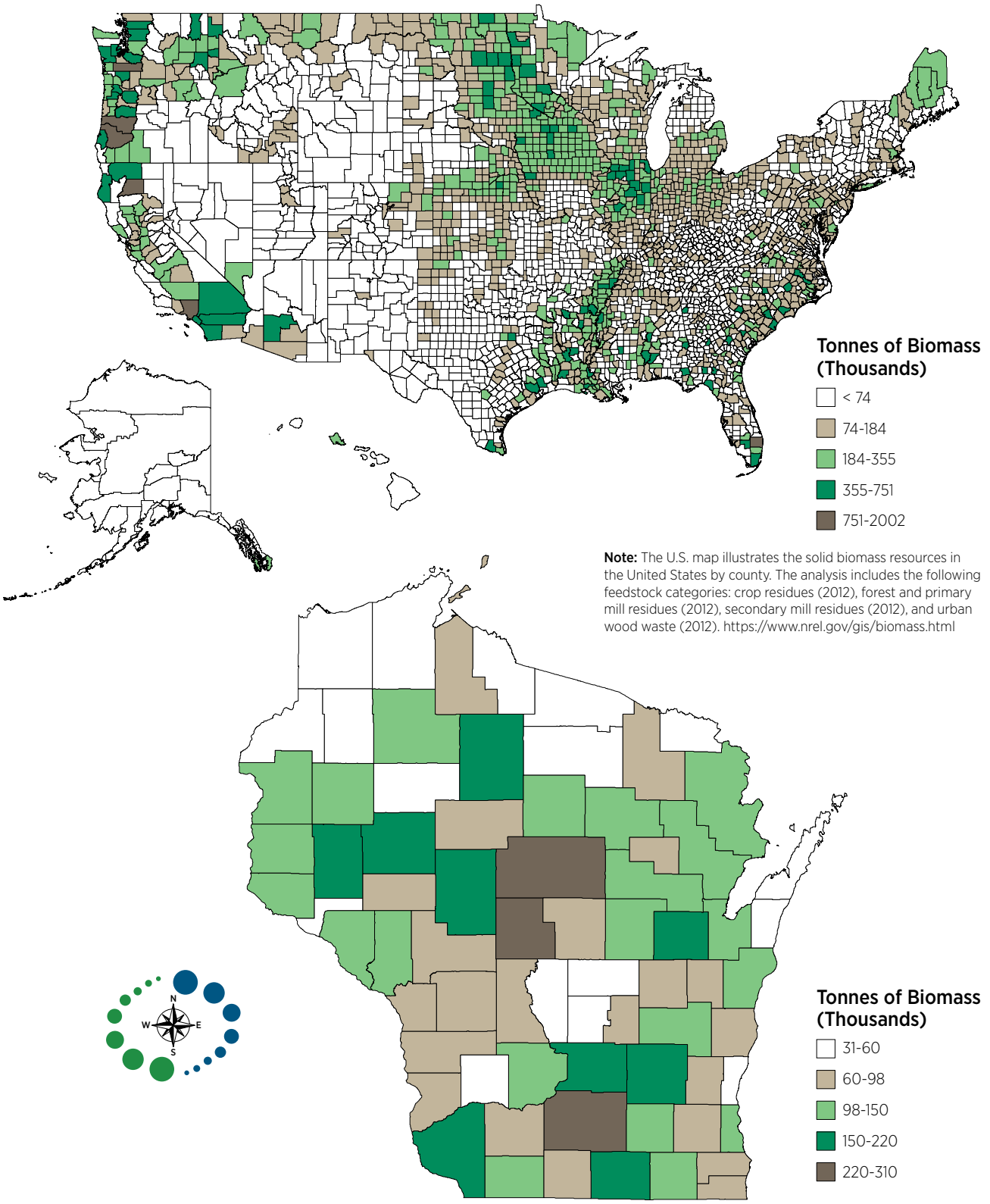
Year	Wisconsin	Illinois	Indiana	Iowa	Michigan	Minnesota	Ohio	Midwest Total	United States
2000	23	0	1	197	1	271	0	493	2,394
2001	54	0	1	318	1	303	0	677	3,918
2002	53	0	1	416	2	338	0	810	4,531
2003	53	50	1	462	2	468	4	1,040	6,121
2004	53	50	1	623	2	518	7	1,254	6,522
2005	53	105	1	820	2	687	7	1,675	8,733
2006	53	105	1	921	2	829	7	1,918	11,334
2007	53	740	1	1,170	2	1,139	7	3,112	16,596
2008	365	962	131	2,661	124	1,481	7	5,731	24,980
2009	449	1,596	1,037	3,448	143	1,636	7	8,316	34,683
2010	469	1,946	1,340	3,665	164	2,009	7	9,600	39,516
2011	631	2,737	1,340	4,302	376	2,580	160	12,126	45,982
2012	370	3,520	1,540	5,005	874	2,842	462	14,613	59,075
2013	329	3,525	1,540	5,047	1,080	2,844	424	14,789	59,973
2014	332	3,527	1,740	5,562	1,360	2,788	424	15,732	64,232
2015	331	3,800	1,740	6,134	1,360	3,241	432	17,038	72,573



Source: U.S. Energy Information Administration, State Energy Data System (2000–2015) http://www.eia.gov/state/seds/seds-data-complete.cfm?sid=US.

Biomass Resources Available in the United States and Wisconsin

2015

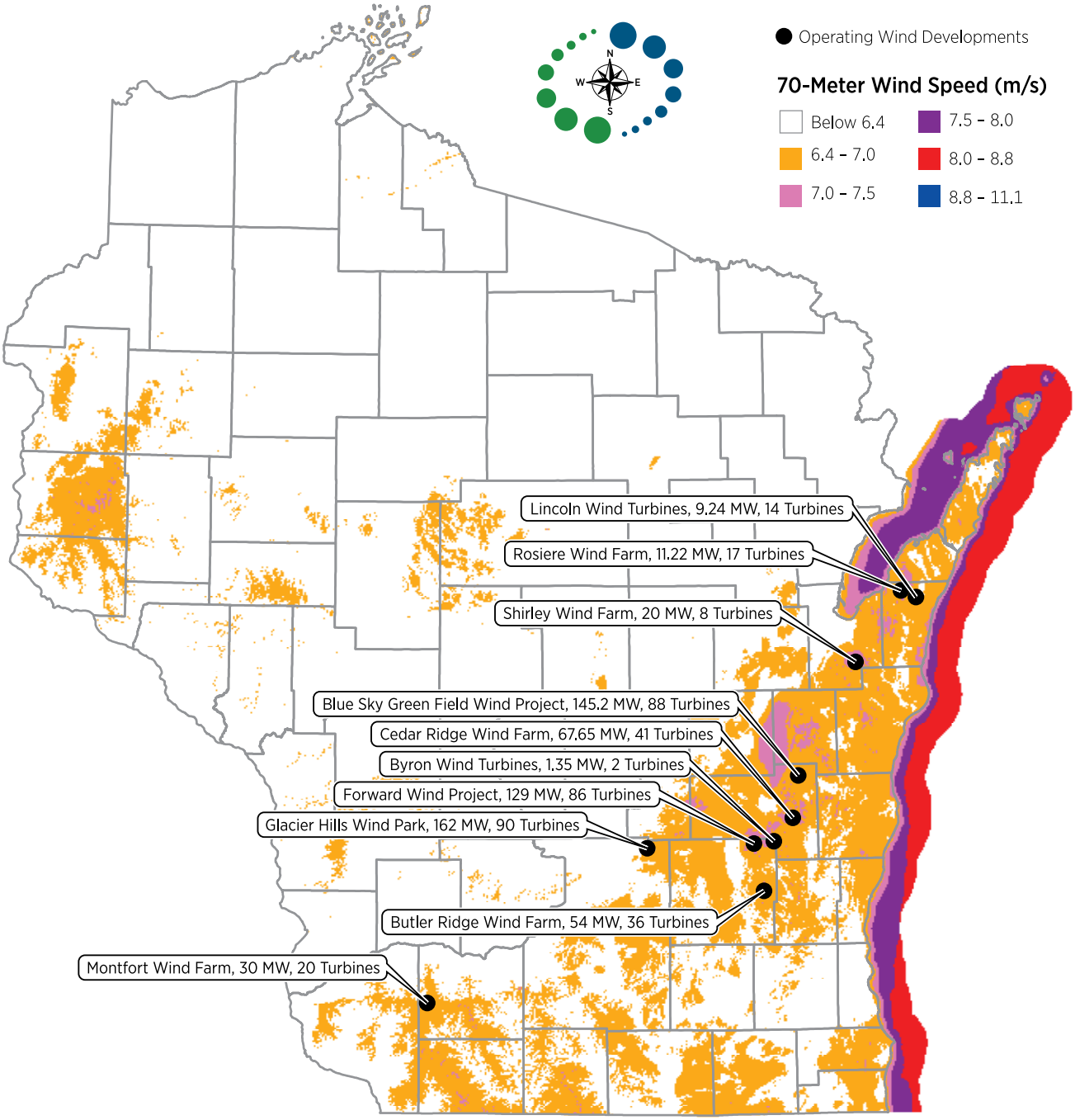


Note: The U.S. map illustrates the solid biomass resources in the United States by county. The analysis includes the following feedstock categories: crop residues (2012), forest and primary mill residues (2012), secondary mill residues (2012), and urban wood waste (2012). https://www.nrel.gov/gis/biomass.html

Source: National Renewable Energy Laboratory <https://www.nrel.gov/gis/data-biomass.html> Public Service Commission of Wisconsin.

Estimated Wind Power Energy Potential (at 70 meters) and Existing Wind Development Locations

2015



Source: AWS Truewind (2008); Public Service Commission of Wisconsin.

focus on energy℠

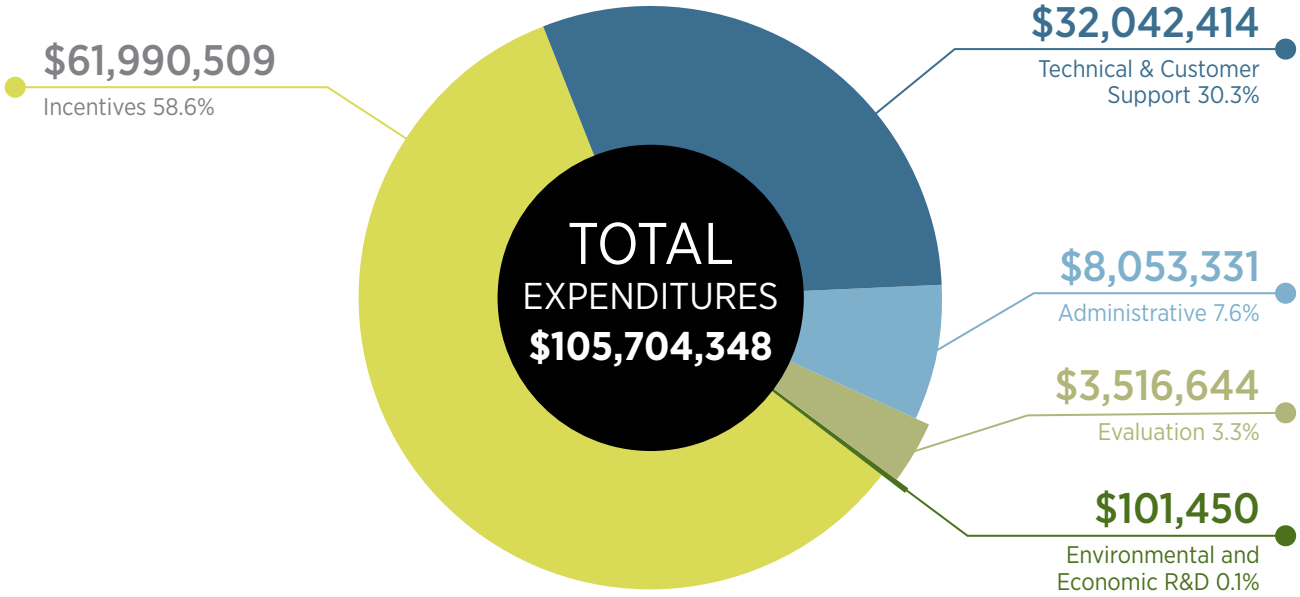
Partnering with Wisconsin utilities

Focus on Energy is Wisconsin's energy efficiency and renewable resource program. Since 2001, Focus on Energy has been providing tools and resources to help Wisconsin use energy smarter and reduce energy waste. Focus on Energy is funded by 108 utilities in the state, including all of Wisconsin's electric and natural gas investor-owned utilities, and participating municipal utilities and electric cooperatives. Focus on Energy works with eligible Wisconsin residents and businesses to install cost effective energy efficiency and renewable energy projects, by providing information, resources and financial incentives to help to implement projects that otherwise would not get completed, or to complete projects sooner.

In 2016, energy savings and environmental benefits from completed projects produced a $3.00 return for every dollar invested The program's efforts have also strengthened our state's economy by helping homeowners, businesses, farms and schools manage energy costs. Wisconsin's Focus on Energy program investments in 2015 and 2016 generated $208 million in economic benefits and annually supported more than 1,200 jobs during that two-year period. Helping Wisconsin residents and businesses reduce energy waste and manage rising energy usage promotes in-state economic development and protects natural resources.

Total Dollars Spent, by Expenditure Category

2015



ADMINISTRATIVE costs are the costs not directly associated with a specific program activity but which are necessary to the development and administration of programs, including record keeping, payroll, accounting, auditing, billing, business management, budgeting and related activities, overhead allocation and other costs necessary to direct the organization of the program, but do not include program evaluation.

TECHNICAL & CUSTOMER SUPPORT costs are those associated with project identification, engineering calculation & modeling, inspection of installed projects, trade ally contractor outreach, technical training, and customer service.

INCENTIVES costs are cash incentives payable to Customers & Trade Allies and instant discounts received at point of purchase at participating retail locations

EVALUATION costs are those associated with independently verifying program energy savings and supporting continuous program improvement through analysis of markets, technologies and program operations.

Focus on Energy supports energy efficiency and renewable energy research through the **ENVIRONMENTAL & ECONOMIC RESEARCH AND DEVELOPMENT PROGRAM** (EERD) which is required by Wis. Stat. §. 196.374(2)(a)2.d. EERD research projects allow Wisconsin to further its efforts towards reducing energy waste, costs, and environmental impacts. All EERD projects are selected through a competitive request for proposals (RFP) process that occurs approximately once per year.

Source: Public Service Commission of Wisconsin, Public Service Commission Report to the Legislature, Energy Efficiency and Renewable Resource Program Activities in Wisconsin (2016) https://psc.wi.gov/Documents/2016FocusReportToLegislatureFINAL.pdf.

Annual Verified Gross and Net Savings, by Segment

2009-2015 (kWh and Therms)

RESIDENTIAL

Year	Gross kWh	Net kWh	Gross Therms	Net Therms
2009	116,893,752	78,234,083	3,591,005	3,206,139
2010	119,653,022	76,919,133	3,598,320	2,375,803
2011	93,887,306	61,368,714	2,875,242	2,088,348
2012	201,523,864	126,367,389	4,126,511	3,273,440
2013	375,444,357	297,880,259	4,587,420	3,412,565
2014	331,055,834	239,161,889	4,265,593	3,078,143
2015	234,338,787	206,530,139	3,662,211	2,226,649

NONRESIDENTIAL

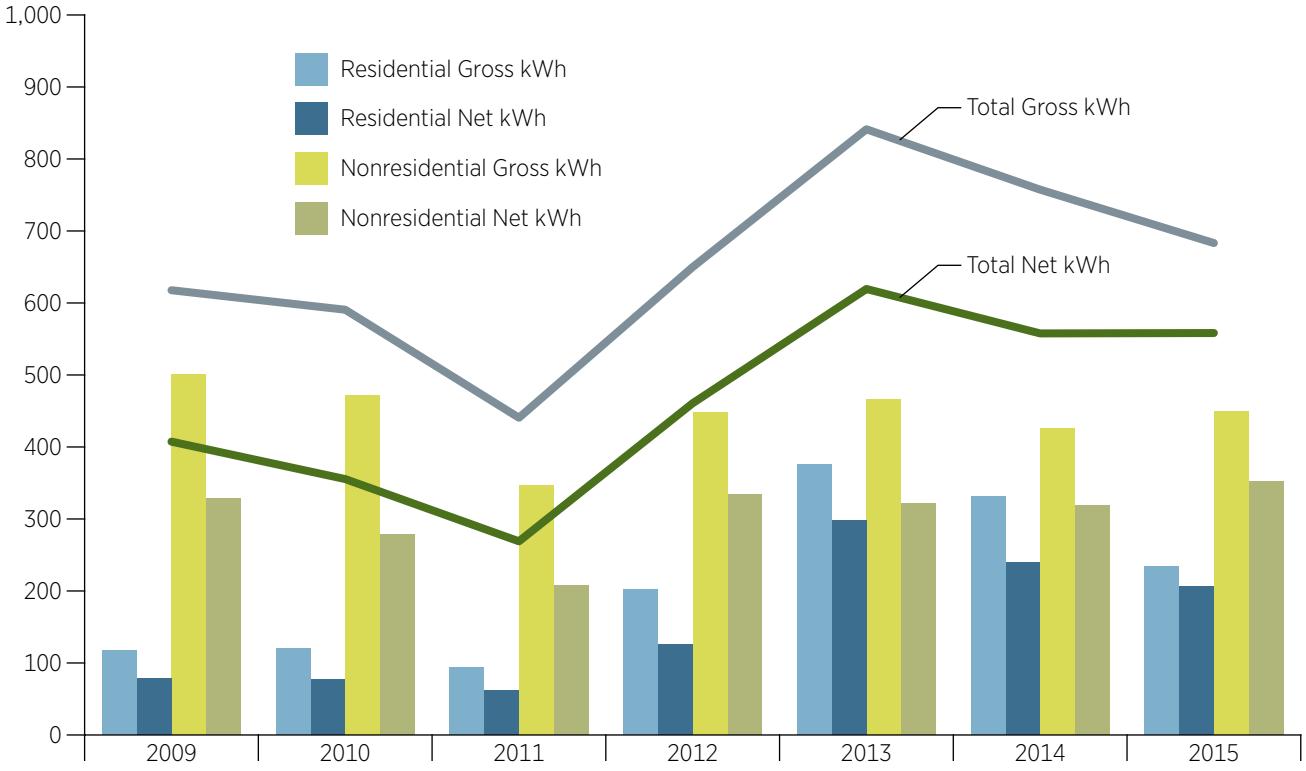
Year	Gross kWh	Net kWh	Gross Therms	Net Therms
2009	500,793,181	329,149,721	20,712,687	12,161,438
2010	470,987,177	278,499,604	20,041,917	9,262,874
2011	346,712,215	207,596,331	13,831,960	9,163,801
2012	448,373,929	334,417,343	22,043,941	13,203,348
2013	465,825,160	321,538,168	17,656,515	14,064,701
2014	426,323,541	318,556,905	20,159,448	15,242,822
2015	448,868,962	351,708,289	33,821,402	26,698,171

TOTAL

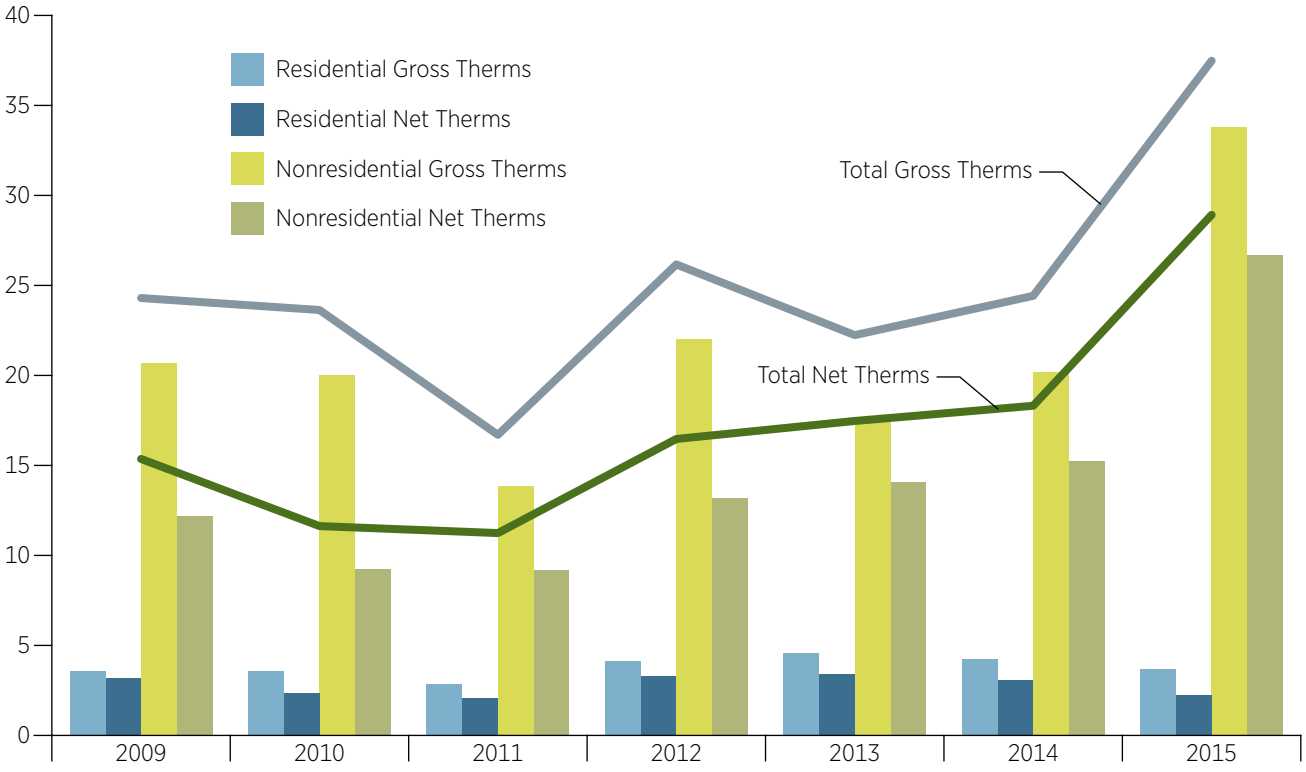
Year	Gross kWh	Net kWh	Gross Therms	Net Therms
2009	617,686,933	407,383,803	24,303,692	15,367,576
2010	590,640,199	355,418,737	23,640,237	11,638,677
2011	440,599,521	268,965,045	16,707,202	11,251,429
2012	649,897,793	460,784,732	26,170,452	16,476,788
2013	841,269,517	619,418,427	22,243,935	17,477,267
2014	757,379,375	557,718,805	24,425,040	18,320,964
2015	683,207,749	558,238,428	37,483,613	28,924,820

Source: Focus on Energy, *Evaluation Report* (2009-2015) https://focusonenergy.com/evaluation-reports.

Annual Verified Gross and Net Electric Savings, by Segment
2009-2015 (Millions of kWh)



Annual Verified Gross and Net Natural Gas Savings, by Segment
2009-2015 (Millions of Therms)



Lifecycle Verified Gross and Net Savings, by Segment

2010-2015 (kWh and Therms)

RESIDENTIAL

Year	Gross kWh	Net kWh	Gross therms	Net therms
2010	1,228,350,997	817,430,868	59,944,987	46,162,350
2011	885,561,963	590,179,180	60,435,758	49,963,308
2012	1,578,656,352	1,047,914,515	80,249,406	64,997,767
2013	2,965,153,969	1,842,968,754	90,424,987	63,878,514
2014	2,696,994,975	1,929,315,906	94,541,074	66,922,135
2015	223,095,841	1,867,449,267	82,477,213	43,568,934

NONRESIDENTIAL

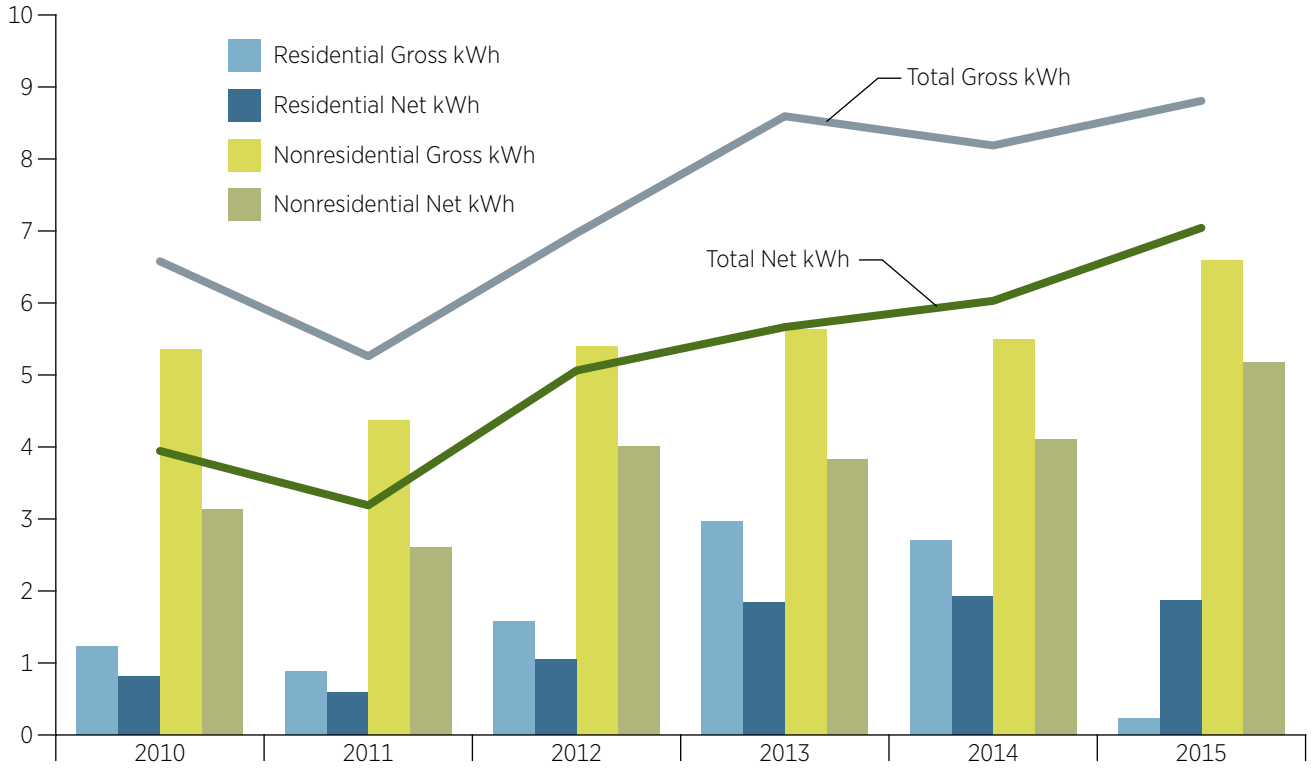
Year	Gross kWh	Net kWh	Gross therms	Net therms
2010	5,350,241,669	3,127,718,325	236,967,513	110,151,807
2011	4,374,342,776	2,598,969,053	185,735,647	120,185,801
2012	5,390,366,110	4,013,367,903	273,269,275	163,421,705
2013	5,628,502,360	3,821,941,257	227,669,922	177,472,322
2014	5,490,288,656	4,100,205,867	263,264,489	197,713,087
2015	6,583,672,339	5,175,466,915	386,769,461	306,142,753

TOTAL

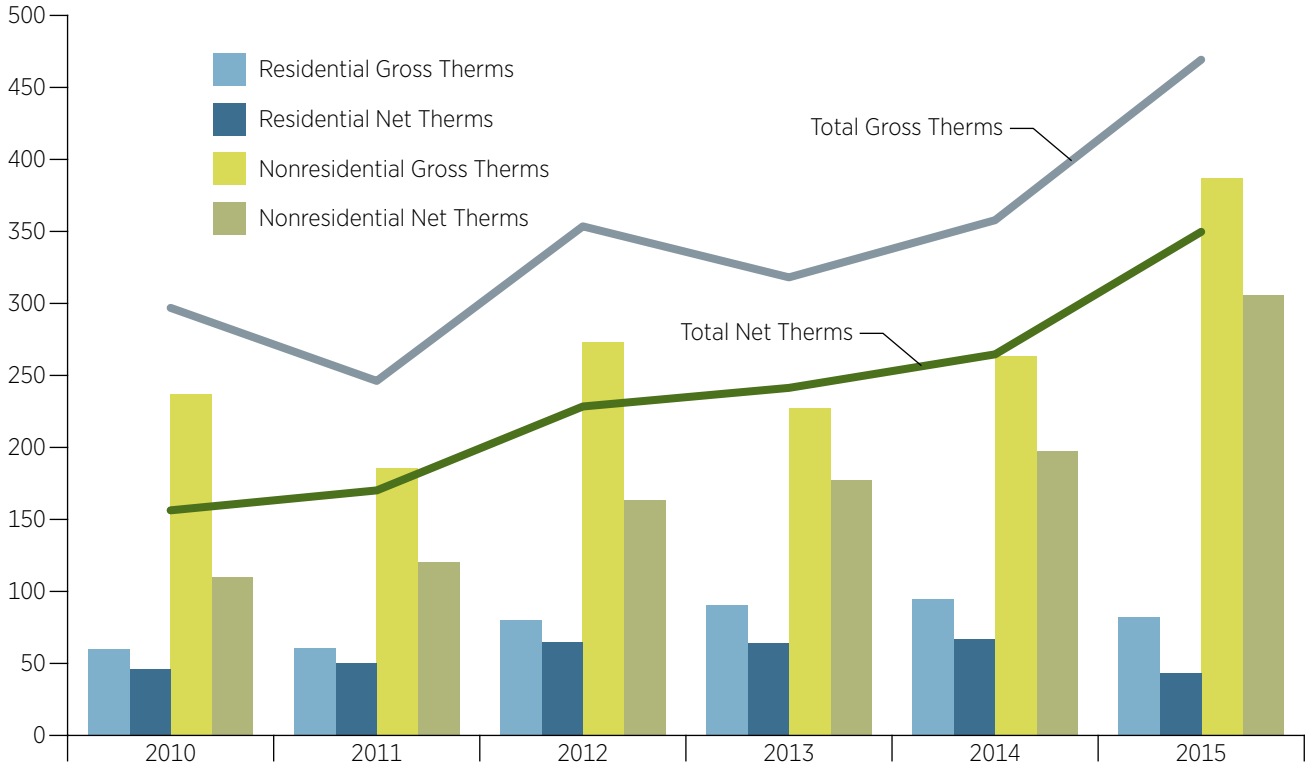
Year	Gross kWh	Net kWh	Gross therms	Net therms
2010	6,578,592,665	3,945,149,194	296,912,500	156,314,157
2011	5,259,904,739	3,189,148,232	246,171,405	170,149,109
2012	6,969,022,462	5,061,282,418	353,518,681	228,419,472
2013	8,593,656,329	5,664,910,011	318,094,910	241,350,836
2014	8,187,283,631	6,029,521,772	357,805,563	264,635,222
2015	8,806,768,180	7,042,916,182	469,246,674	349,711,687

Source: Focus on Energy, *Evaluation Report* (2009-2015) https://focusonenergy.com/evaluation-reports.

Lifecycle Verified Gross and Net Electric Savings, by Segment 2010-2015 (Billions of kWh)



Lifecycle Verified Gross and Net Natural Gas Savings, by Segment 2010-2015 (Millions of Therms)



Energy Use & Prices

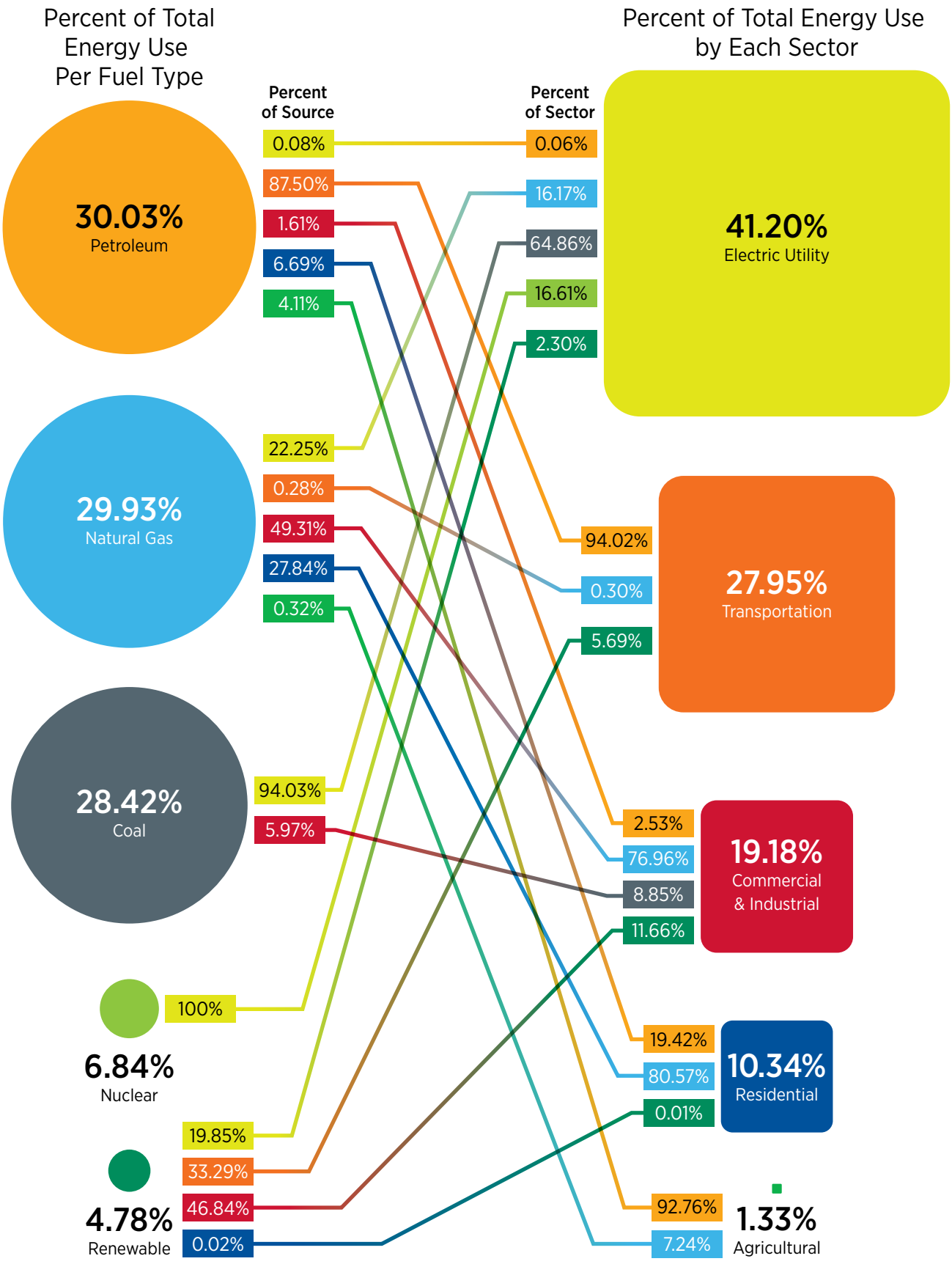
Energy consumption and fuel costs vary widely both by type of fuel, and economic sector. The type and amount of fuel consumed by an economic sector depends largely on its economic activity, but is also influenced by the price of energy which can change in response to market prices. Energy consumption by the various economic sectors of Wisconsin has changed greatly over the last 40 years as a result of changes in both policy and price. As these changes occur, the Wisconsin Office of Energy Innovation continues to track and record prices and use in the annual Wisconsin Energy Statistics.

An economic sector is defined by the major economic activities of a particular group – Agricultural, Commercial, Electric Utility, Industrial, Residential, and Transportation. Economic sectors may overlap in type of fuel consumed, but end-use often varies. For instance, the **residential sector** uses natural gas primarily for space heating whereas the **electric utility sector** uses natural gas to generate electricity; the **transportation sector** uses petroleum as motor gasoline while the **agricultural sector** uses petroleum primarily as diesel to power farm equipment; and the **industrial and commercial sectors** are the largest consumers of electricity, using it primarily for manufacturing and production of goods or to power and light offices and buildings.

From 2009 to 2015, natural gas consumption by the Electric Utility sector increased by approximately 100 percent, attributable to technological advances in drilling that allowed previously 'trapped' natural gas reserves to be extracted, leading to greater supply and lower prices. Low natural gas prices then led to an increase in the number of natural gas powered vehicles. As a result, natural gas consumption by the Transportation sector increased from 0.02 Tbtu in 2005 to 1.31 Tbtu in 2015.

Commercial and Industrial sector renewable energy use increased as prices for renewable resources decreased – due in part to federal and state incentives designed to help bring renewable energy into price parity with conventional energy resources (coal, natural gas). In 2005, the state of Wisconsin passed Legislative Act 141 establishing Focus on Energy, Wisconsin's statewide energy efficiency and renewable energy program. Focus on Energy provided financial incentives to commercial customers and large energy users (typically industrial customers) to help spur greater adoption and development of renewable energy technologies and systems.

Energy Use by Fuel and Sector



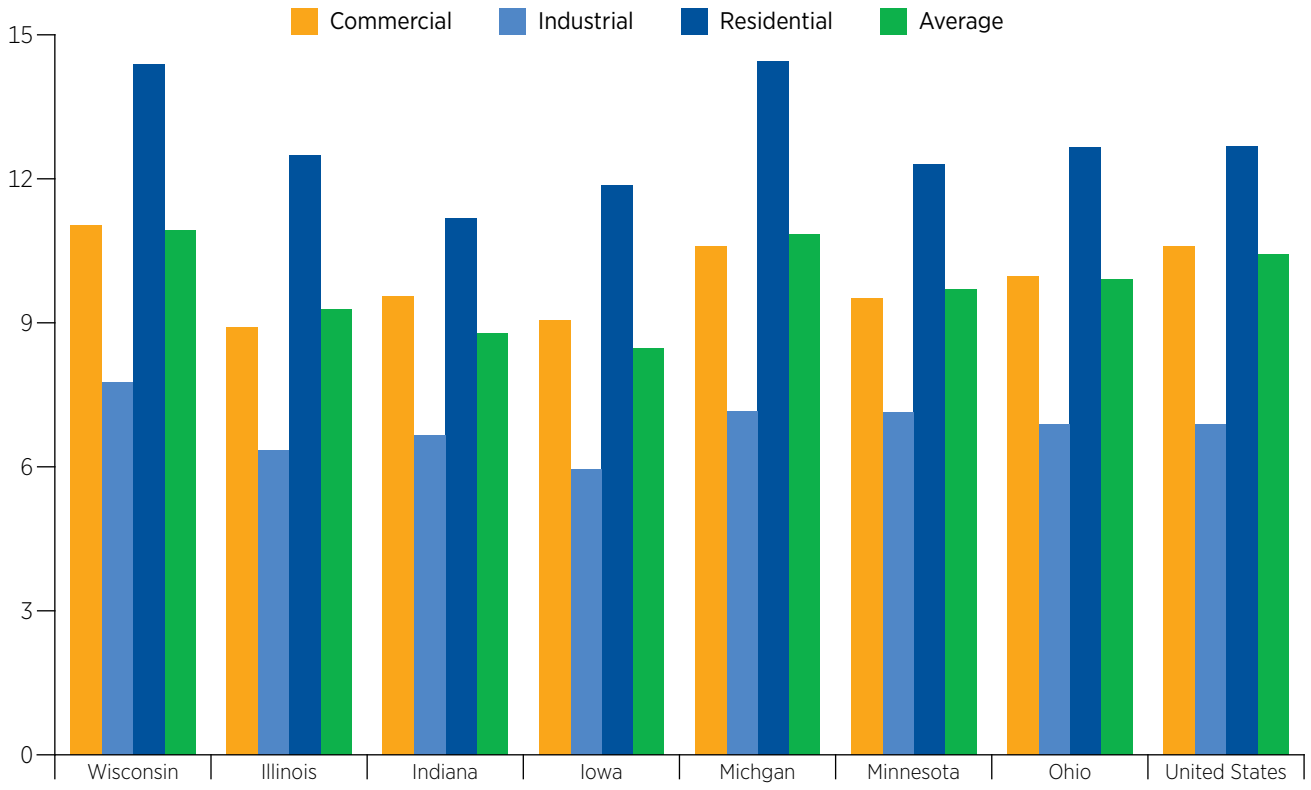
Average Utility Electricity and Natural Gas Prices, by Economic Sector for Select Midwestern States

2013-2015

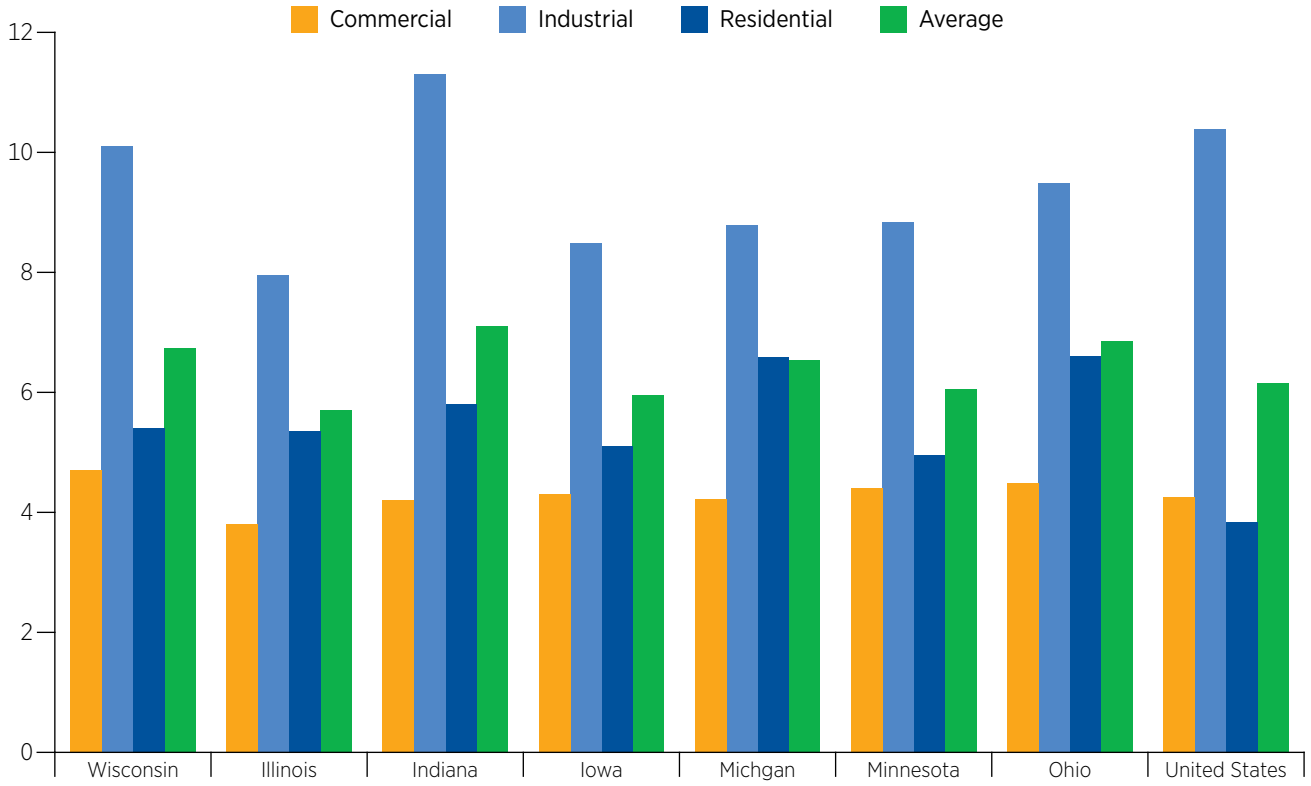
	Electricity (Cents Per kWh)				Natural Gas (Dollars Per Million Btu)			
	Commercial	Industrial	Residential	Average	Commercial	Industrial	Residential	Average
2013								
Wisconsin	10.74	7.40	13.55	10.51	7.07	6.02	8.65	7.25
Illinois	8.14	5.94	10.63	8.26	7.57	6.00	8.20	7.26
Indiana	9.60	6.70	10.99	8.73	7.59	6.54	8.43	7.52
Iowa	8.44	5.62	11.05	8.07	6.97	5.43	8.99	7.13
Michigan	11.06	7.72	14.59	11.21	7.82	6.97	9.09	7.96
Minnesota	9.42	6.98	11.81	9.41	6.86	4.94	8.19	6.66
Ohio	9.85	6.22	12.01	9.20	6.20	6.14	9.46	7.27
United States	10.28	6.84	12.13	10.07	8.08	4.64	10.32	7.68
2014								
Wisconsin	10.77	7.52	13.67	10.57	8.74	8.08	10.21	9.01
Illinois	9.26	6.85	11.91	9.36	8.86	7.75	9.59	8.73
Indiana	9.96	6.97	11.46	9.06	8.19	7.45	9.02	8.22
Iowa	8.67	5.71	11.16	8.15	8.15	7.40	10.02	8.52
Michigan	10.87	7.68	14.46	11.03	8.28	7.84	9.33	8.48
Minnesota	9.85	6.72	12.01	9.52	8.66	6.57	9.89	8.37
Ohio	9.83	6.77	12.50	9.73	7.82	7.06	10.16	8.35
United States	10.74	7.10	12.52	10.44	8.90	5.55	10.97	8.47
2015								
Wisconsin	11.03	7.77	14.38	10.93	4.71	10.10	5.40	6.74
Illinois	8.90	6.35	12.49	9.28	3.80	7.95	5.36	5.70
Indiana	9.56	6.66	11.18	8.79	4.20	11.30	5.80	7.10
Iowa	9.05	5.95	11.87	8.47	4.30	8.49	5.10	5.96
Michigan	10.59	7.16	14.45	10.84	4.22	8.78	6.59	6.53
Minnesota	9.52	7.13	12.30	9.69	4.40	8.84	4.95	6.06
Ohio	9.96	6.88	12.66	9.90	4.49	9.49	6.60	6.86
United States	10.59	6.89	12.67	10.42	4.25	10.38	3.84	6.16

Source: U.S. Energy Information Administration, Electric Power Monthly Sales, Revenue, and Average Retail Price of Electricity, http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_06_b, Natural Gas Monthly (2015-2015) https://www.eia.gov/dnav/ng/ng_pri_sum_a_EPG0_PIN_DMcf_a.htm.

Wisconsin Average Utility Electricity Prices, by Economic Sector for Select Midwestern States, 2015 (Cents Per kWh)



Wisconsin Average Utility Natural Gas Prices, by Economic Sector for Select Midwestern States, 2015 (Dollars Per Million Btu)



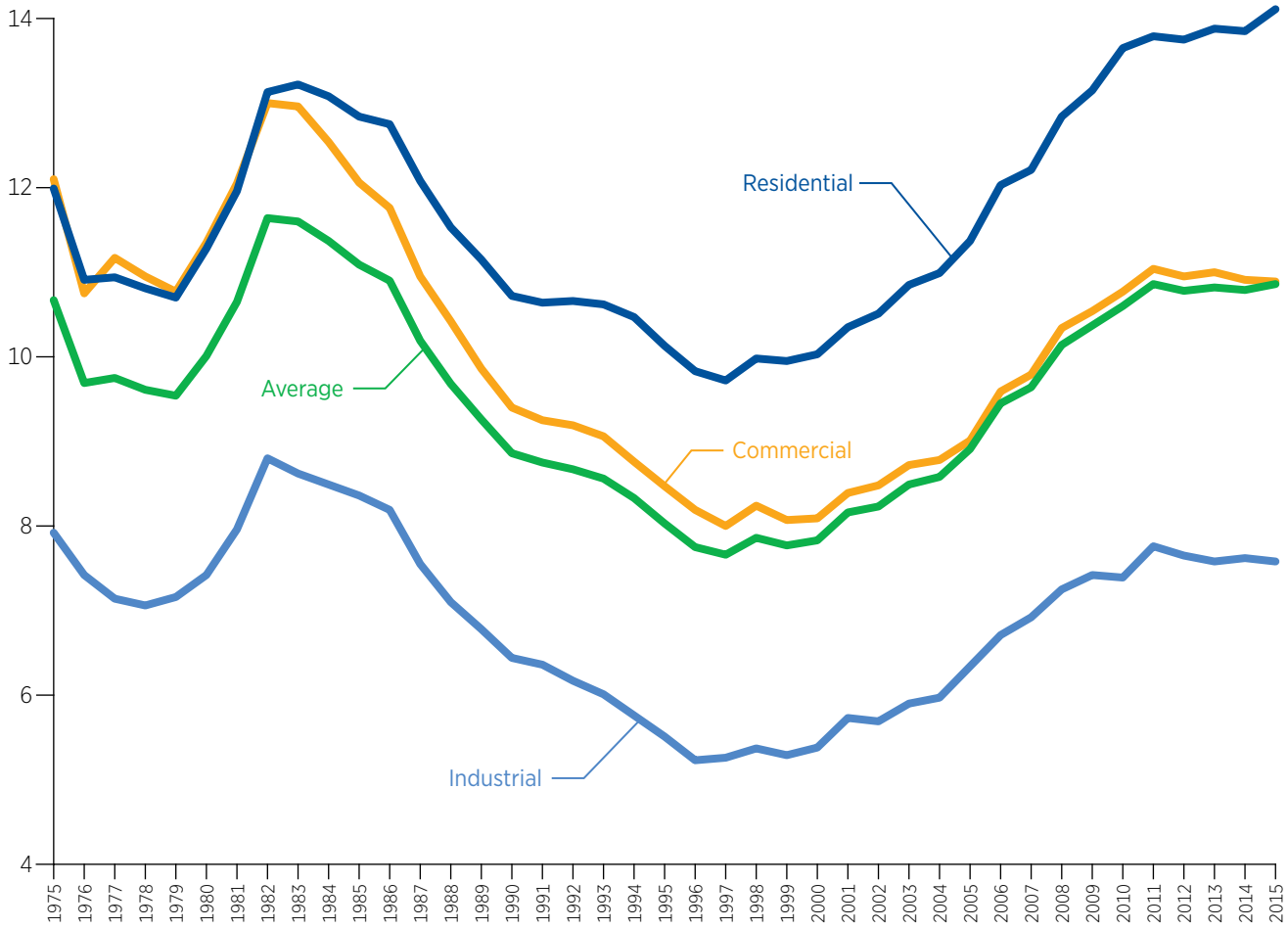
Wisconsin Electricity Prices, by Economic Sector

1975-2015 (Cents per kWh)

	Nominal Dollars				2015 Dollars			
Year	Commercial	Industrial	Residential	Average	Commercial	Industrial	Residential	Average
1975	3.23	2.10	3.14	2.82	12.10	7.92	11.99	10.67
1976	3.39	2.34	3.44	3.06	10.75	7.42	10.91	9.69
1977	3.77	2.41	3.69	3.29	11.17	7.14	10.94	9.75
1978	4.00	2.58	3.95	3.51	10.95	7.06	10.81	9.61
1979	4.29	2.85	4.26	3.80	10.77	7.16	10.70	9.54
1980	4.94	3.23	4.91	4.36	11.35	7.42	11.28	10.01
1981	5.57	3.68	5.53	4.93	12.05	7.96	11.96	10.65
1982	6.25	4.23	6.31	5.60	13.00	8.80	13.13	11.64
1983	6.45	4.29	6.58	5.77	12.96	8.62	13.22	11.60
1984	6.44	4.36	6.72	5.84	12.54	8.49	13.08	11.37
1985	6.32	4.38	6.73	5.81	12.06	8.36	12.84	11.09
1986	6.32	4.40	6.85	5.86	11.76	8.19	12.75	10.90
1987	6.09	4.20	6.72	5.67	10.95	7.55	12.08	10.19
1988	6.02	4.10	6.66	5.59	10.42	7.10	11.53	9.68
1989	5.91	4.06	6.68	5.55	9.86	6.78	11.15	9.26
1990	5.82	3.99	6.64	5.48	9.40	6.44	10.72	8.86
1991	5.86	4.03	6.74	5.54	9.25	6.36	10.64	8.75
1992	5.96	4.00	6.91	5.62	9.19	6.17	10.66	8.67
1993	6.00	3.98	7.03	5.67	9.06	6.01	10.62	8.56
1994	5.92	3.89	7.08	5.63	8.76	5.76	10.47	8.33
1995	5.83	3.79	6.97	5.53	8.47	5.51	10.13	8.03
1996	5.73	3.66	6.88	5.42	8.19	5.23	9.83	7.75
1997	5.66	3.72	6.88	5.42	8.00	5.26	9.72	7.66
1998	5.92	3.86	7.17	5.65	8.24	5.37	9.98	7.86
1999	5.93	3.89	7.31	5.71	8.07	5.29	9.95	7.77
2000	6.08	4.04	7.54	5.89	8.09	5.38	10.03	7.83
2001	6.40	4.37	7.90	6.22	8.39	5.73	10.35	8.16
2002	6.60	4.43	8.18	6.40	8.48	5.69	10.51	8.23
2003	6.97	4.72	8.68	6.79	8.72	5.90	10.85	8.49
2004	7.25	4.93	9.07	7.08	8.78	5.97	10.99	8.58
2005	7.67	5.39	9.67	7.58	9.01	6.34	11.37	8.91
2006	8.38	5.86	10.51	8.25	9.59	6.71	12.03	9.45
2007	8.72	6.16	10.87	8.58	9.79	6.92	12.21	9.64
2008	9.28	6.51	11.52	9.10	10.34	7.25	12.84	10.14
2009	9.57	6.74	11.94	9.42	10.54	7.42	13.15	10.37
2010	9.98	6.85	12.65	9.83	10.77	7.39	13.65	10.60
2011	10.42	7.33	13.02	10.26	11.04	7.76	13.79	10.86
2012	10.51	7.34	13.19	10.35	10.95	7.65	13.75	10.78
2013	10.74	7.40	13.55	10.56	11.00	7.58	13.88	10.82
2014	10.77	7.52	13.67	10.65	10.91	7.62	13.85	10.79
2015	10.89	7.58	14.11	10.86	10.89	7.58	14.11	10.86

Source: U.S. Energy Information Administration, State Energy Data System, Prices and Expenditures (1970-2015)
http://www.eia.gov/state/seds/seds-data-complete.cfm#PricesExpenditures.

Wisconsin Electricity Prices, by Economic Sector
1975-2015 (Cents per kWh)



Wisconsin Natural Gas Prices, by Economic Sector

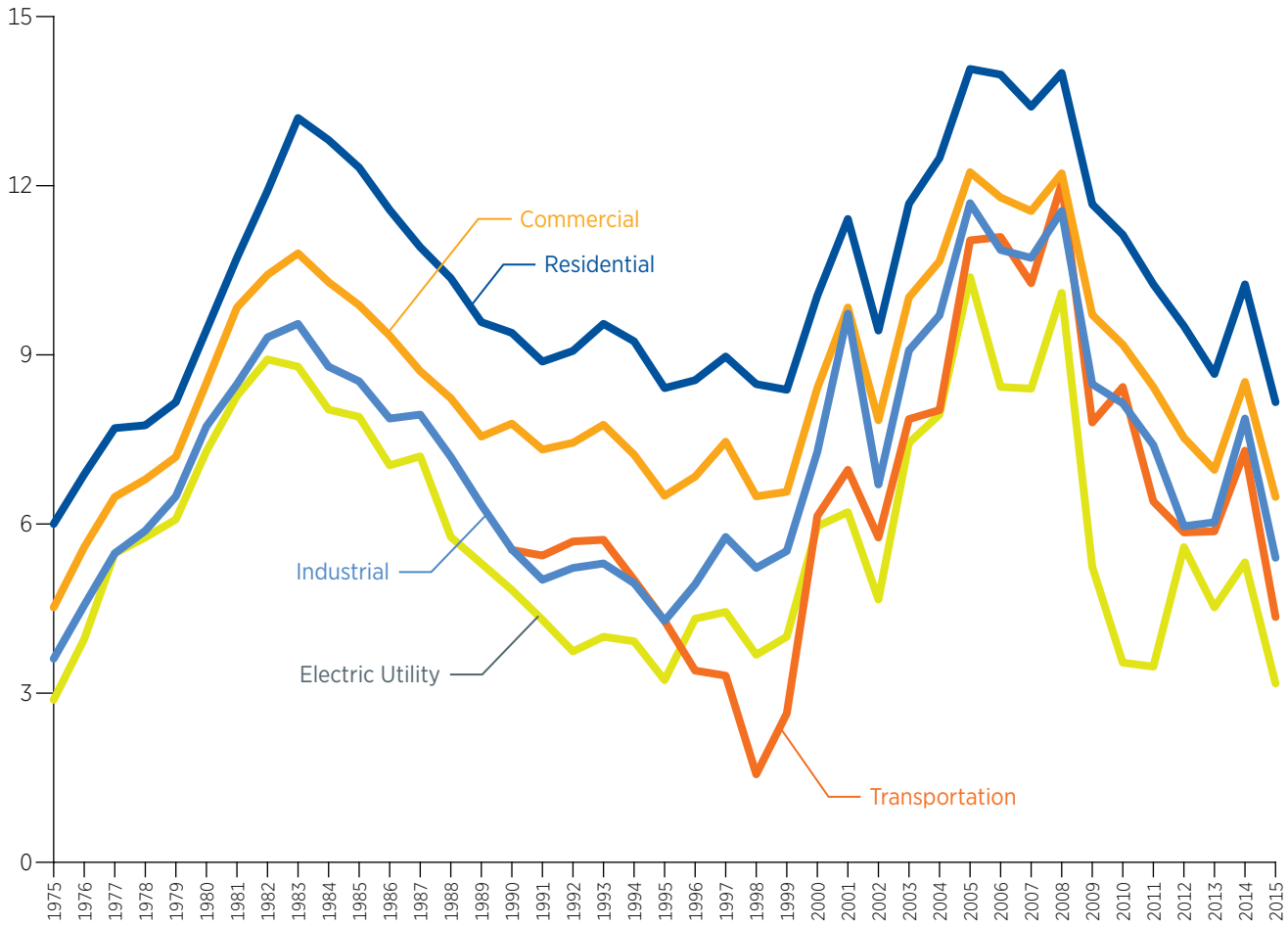
1975-2015 (Dollars per Million Btu)

	Nominal Dollars						2015 Dollars					
Year	Commercial	Electric Utility	Industrial	Residential	Transportation	Average[a]	Commercial	Electric Utility	Industrial	Residential	Transportation	Average
1975	1.29	0.82	1.03	1.71		1.30	4.52	2.88	3.61	6.00		4.56
1976	1.68	1.19	1.37	2.07		1.70	5.59	3.96	4.56	6.88		5.65
1977	2.07	1.75	1.75	2.46		2.05	6.48	5.48	5.48	7.70		6.42
1978	2.32	1.97	2.01	2.65		2.30	6.79	5.76	5.88	7.75		6.73
1979	2.66	2.25	2.40	3.02		2.66	7.19	6.08	6.49	8.16		7.19
1980	3.43	2.94	3.12	3.81		3.43	8.50	7.29	7.73	9.44		8.50
1981	4.34	3.65	3.74	4.73		4.22	9.84	8.27	8.48	10.72		9.57
1982	4.88	4.18	4.36	5.58		4.95	10.42	8.92	9.31	11.91		10.57
1983	5.26	4.28	4.65	6.43		5.47	10.80	8.79	9.55	13.20		11.23
1984	5.19	4.05	4.43	6.46		5.38	10.29	8.03	8.79	12.81		10.67
1985	5.14	4.11	4.44	6.41		5.37	9.88	7.90	8.53	12.32		10.32
1986	4.96	3.74	4.18	6.14		5.14	9.34	7.04	7.87	11.57		9.68
1987	4.74	3.92	4.32	5.94		5.03	8.71	7.20	7.94	10.91		9.24
1988	4.64	3.25	4.05	5.84		4.88	8.23	5.77	7.19	10.36		8.66
1989	4.42	3.10	3.71	5.61		4.61	7.55	5.30	6.34	9.58		7.88
1990	4.72	2.93	3.37	5.70	3.36	4.55	7.78	4.83	5.55	9.39	5.54	7.50
1991	4.59	2.70	3.14	5.57	3.41	4.40	7.32	4.30	5.01	8.88	5.44	7.01
1992	4.77	2.40	3.35	5.82	3.65	4.60	7.44	3.74	5.22	9.07	5.69	7.17
1993	5.10	2.63	3.48	6.27	3.76	4.91	7.76	4.00	5.30	9.55	5.72	7.48
1994	4.85	2.63	3.32	6.20	3.36	4.75	7.23	3.92	4.95	9.24	5.01	7.08
1995	4.45	2.21	2.93	5.76	2.93	4.30	6.50	3.23	4.28	8.41	4.28	6.28
1996	4.77	3.01	3.44	5.96	2.37	4.70	6.84	4.32	4.93	8.55	3.40	6.74
1997	5.29	3.15	4.09	6.36	2.35	5.12	7.46	4.44	5.77	8.97	3.31	7.22
1998	4.65	2.64	3.74	6.08	1.12	4.63	6.49	3.68	5.22	8.48	1.56	6.46
1999	4.78	2.91	4.02	6.10	1.92	4.84	6.57	4.00	5.52	8.38	2.64	6.65
2000	6.26	4.44	5.42	7.48	4.57	6.27	8.41	5.96	7.28	10.05	6.14	8.42
2001	7.49	4.73	7.41	8.69	5.30	7.71	9.84	6.21	9.73	11.41	6.96	10.13
2002	6.06	3.60	5.18	7.29	4.45	6.07	7.84	4.66	6.70	9.43	5.76	7.85
2003	7.90	5.87	7.16	9.21	6.20	8.00	10.02	7.44	9.08	11.68	7.86	10.15
2004	8.64	6.43	7.86	10.12	6.50	8.76	10.66	7.94	9.70	12.49	8.02	10.81
2005	10.24	8.68	9.78	11.77	9.22	10.37	12.24	10.38	11.69	14.07	11.03	12.40
2006	10.16	7.27	9.36	12.04	9.56	10.19	11.79	8.43	10.86	13.97	11.09	11.82
2007	10.22	7.43	9.49	11.86	9.09	10.17	11.55	8.40	10.72	13.40	10.27	11.49
2008	11.03	9.11	10.42	12.63	10.86	11.22	12.22	10.10	11.55	14.00	12.04	12.44
2009	8.83	4.76	7.71	10.61	7.09	8.69	9.71	5.24	8.48	11.67	7.80	9.56
2010	8.45	3.26	7.49	10.24	7.76	8.40	9.18	3.54	8.14	11.13	8.43	9.13
2011	7.92	3.26	6.95	9.63	6.01	7.82	8.43	3.47	7.40	10.25	6.40	8.33
2012	7.20	5.35	5.70	9.10	5.60	6.42	7.53	5.59	5.96	9.51	5.85	6.71
2013	6.76	4.39	5.86	8.42	5.71	6.72	6.96	4.52	6.03	8.66	5.87	6.91
2014	8.43	5.26	7.79	10.14	7.22	7.83	8.52	5.32	7.87	10.25	7.30	7.91
2015	6.48	3.17	5.40	8.16	4.35	5.60	6.48	3.17	5.40	8.16	4.35	5.60

a Does not include Electric Utility

Source: U.S. Energy Information Administration, State Energy Data System Prices and Expenditures (1970-2015)
http://www.eia.gov/state/seds/seds-data-complete.cfm#PricesExpenditures.

Wisconsin Natural Gas Prices, by Economic Sector
1975-2015 (Dollars per Million Btu)



Wisconsin Natural Gas Deliveries, by Pipeline Company

1975-2015 (Trillions of Btu)

Year	ANR Pipeline Co.[a]	Viking Gas Trans. Co.[b]	Natural Gas Pipeline Co.[c]	Northern Natural Gas Co.	Guardian Pipeline[d]	Total[e,f]
1975	323.00	5.70	7.10	29.20		365.00
1980	305.50	3.90	7.80	26.80		344.00
1981	281.90	3.60	7.40	26.90		319.80
1982	275.40	2.90	7.60	26.70		312.60
1983	265.40	2.60	7.40	26.50		301.90
1984	266.90	3.60	7.80	26.70		305.00
1985	265.80	1.20	7.70	29.40		304.10
1986	225.80	1.20	7.40	25.10		259.50
1987	173.20	0.90	5.50	21.40		201.00
1988	191.50	1.00	6.40	27.50		229.80
1989	194.30	1.60	7.40	32.10		242.80
1990	218.20	6.00	7.40	53.80		303.20
1991	228.00	6.10	7.80	61.90		321.00
1992	234.00	6.70	9.00	64.80		332.30
1993	258.00	7.00	8.80	59.00		346.00
1994	260.90	7.90	21.50	60.70		351.00
1995	264.30	9.10	23.50	83.10		380.00
1996	269.50	9.90	26.10	92.30		397.80
1997	265.80	10.40	23.10	90.80		390.10
1998	241.00	10.20	19.70	85.50		356.40
1999	256.30	11.40	16.32	88.30		372.32
2000	272.10	11.10	20.97	90.00		394.17
2001	236.40	14.10	23.70	84.10		358.30
2002	267.20	15.10	22.30	82.46	1.90	388.96
2003	257.00	16.00	19.90	84.80	20.30	398.00
2004	241.80	14.80	19.80	84.00	40.80	401.20
2005	253.20	16.06	19.57	84.00	42.89	415.72
2006	219.00	14.60	19.90	88.60	40.60	382.70
2007	249.90	18.78	17.96	88.40	48.87	423.91
2008	258.30	17.94	17.46	94.90	53.91	442.51
2009	243.00	17.62	18.51	80.60	53.48	413.21
2010	226.90	18.80	12.20	77.10	43.90	378.90
2011	237.90	18.80	11.40	77.96	66.10	412.16
2012	240.75	18.73	6.59	79.55	57.23	402.85
2013	249.04	20.75	6.57	82.22	70.51	429.09
2014	218.49	20.92	6.87	86.29	57.02	389.59
2015	125.58	18.58	7.44	84.58	55.75	291.93

a Formerly American Natural Resources Pipeline Co.

b Formerly Midwest Gas Transmission Co.

c In 1994, Midcon Corporation became part of the Natural Gas Pipeline Co.

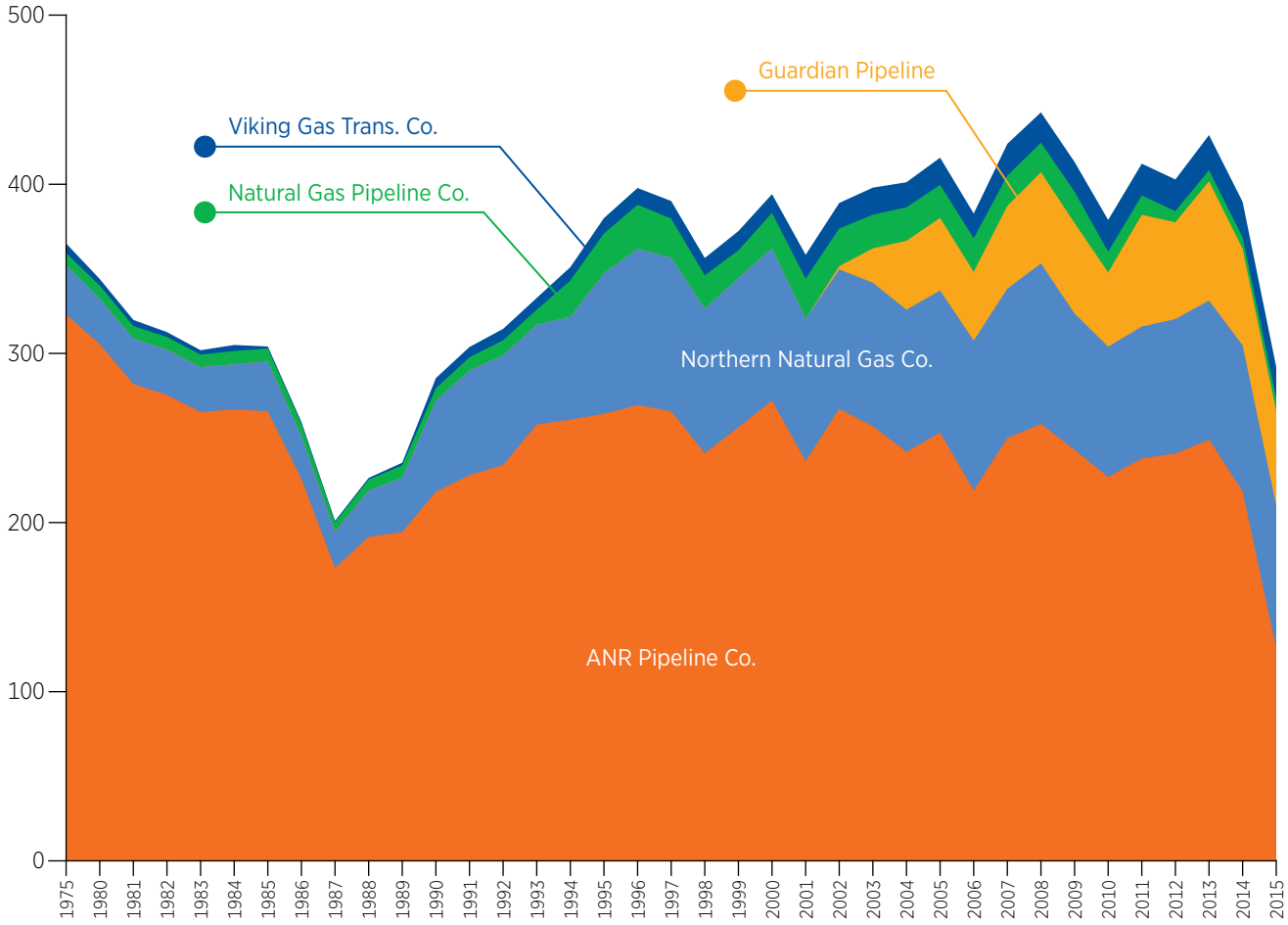
d Guardian Pipeline became operational on December 7, 2002.

e Prior to 1990, deliveries represent utility gas sales. From 1990, deliveries represent total gas used in Wisconsin, including both utility and transported gas deliveries.

f Total purchases differ from the total sold and used by gas utilities due to inventory changes, utility production from liquefied petroleum gas, and some unaccounted gas.

Source: Public Service Commission of Wisconsin, Accounts and Finance Division, Statistics of Wisconsin Public Utilities, Bulletin #8 (1970-1994); ANR Pipeline Company, Viking Gas Transmission Company, Natural Gas Pipeline Company, Northern Natural Gas Company, Guardian Pipeline, Personal communication (1991–2015).

Wisconsin Natural Gas Deliveries, by Pipeline Company
1975-2015 (Trillions of Btu)



Wisconsin Natural Gas Use, by Economic Sector

1975-2015 (Trillions of Btu)

Year	Agricultural	Commercial[a]	Electric Utility[b]	Industrial	Residential	Transportation[c]	Total Resource Use	Total End-Use
1975		57.00	19.80	169.10	122.43		368.33	348.53
1976		59.50	12.70	165.10	125.11		362.41	349.71
1977		55.20	5.90	141.10	120.79		322.99	317.09
1978		60.40	7.90	154.80	130.61		353.71	345.81
1979		64.30	21.00	156.90	126.64		368.84	347.84
1980		61.40	14.10	144.50	123.99		343.99	329.89
1981		57.60	7.70	141.70	112.00		319.00	311.30
1982		56.80	4.30	130.80	119.42		311.32	307.02
1983		54.30	3.40	127.70	113.03		298.43	295.03
1984		56.30	1.90	132.10	113.92		304.22	302.32
1985		59.80	1.40	126.10	116.94		304.24	302.84
1986		56.80	1.80	115.60	112.12		286.32	284.52
1987		53.50	2.20	118.50	103.84		278.04	275.84
1988		64.00	2.70	125.30	121.97		313.97	311.27
1989		71.20	2.10	127.20	127.63		328.13	326.03
1990		66.75	2.40	122.60	114.67		306.43	304.03
1991		72.04	2.70	129.70	124.86		329.29	326.59
1992		71.98	2.60	131.40	124.10		330.09	327.49
1993		77.96	3.10	135.00	131.43		347.48	344.38
1994		79.59	4.00	136.70	129.53		349.82	345.82
1995		86.02	10.10	147.61	137.51		381.24	371.14
1996		95.12	7.40	151.46	149.82		403.80	396.40
1997		89.79	15.95	157.39	137.31		400.44	384.49
1998		82.33	24.65	143.54	117.22		367.74	343.09
1999		82.82	21.52	147.45	129.14		380.93	359.41
2000		82.12	21.43	153.44	136.45		393.44	372.00
2001		77.33	22.56	134.18	126.40		360.47	337.92
2002		86.62	20.69	138.67	138.20		384.17	363.48
2003		88.08	24.32	138.71	143.20		394.32	369.99
2004		83.05	21.44	142.07	136.12		382.67	361.23
2005	1.26	87.21	59.38	132.27	132.92	0.0238	413.06	353.68
2006	1.11	87.29	44.46	119.70	121.89	0.0247	374.47	330.01
2007	1.14	90.26	54.92	122.81	133.00	0.0237	402.15	347.23
2008	3.64	98.50	41.71	129.61	142.54	0.0199	416.02	374.31
2009	2.52	92.74	41.58	121.39	135.04	0.0204	393.29	351.71
2010	1.62	83.03	43.07	122.62	124.85	0.0346	375.22	332.16
2011	2.49	88.26	48.40	128.63	131.26	0.0630	399.10	350.71
2012	1.77	78.41	88.63	126.70	114.69	0.17	410.37	321.74
2013	1.54	99.30	62.70	139.40	146.60	0.44	449.98	387.28
2014	1.70	107.50	61.70	146.20	155.20	0.98	473.28	411.58
2015	1.52	91.50	105.20	141.60	131.60	1.31	472.73	367.53

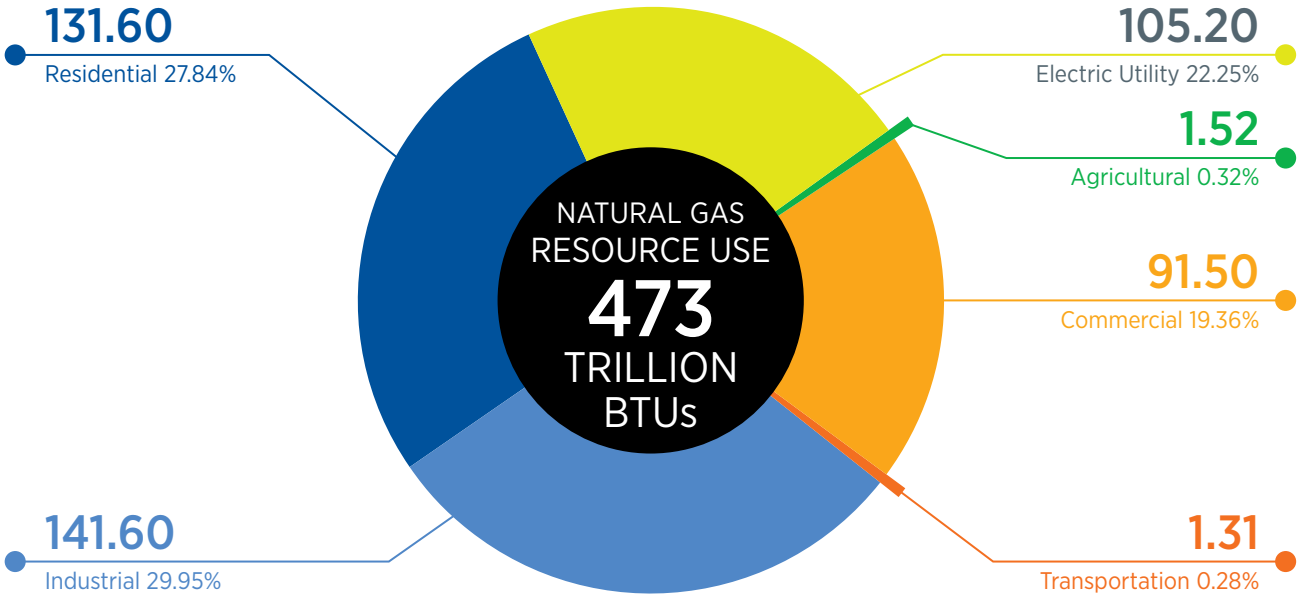
a Includes sales to government agencies and other public authorities for general or institutional purposes and vehicle fuel, classified as "other" sales by the American Gas Association.

b Includes gas used in electric power generation by utilities and independent power producers.

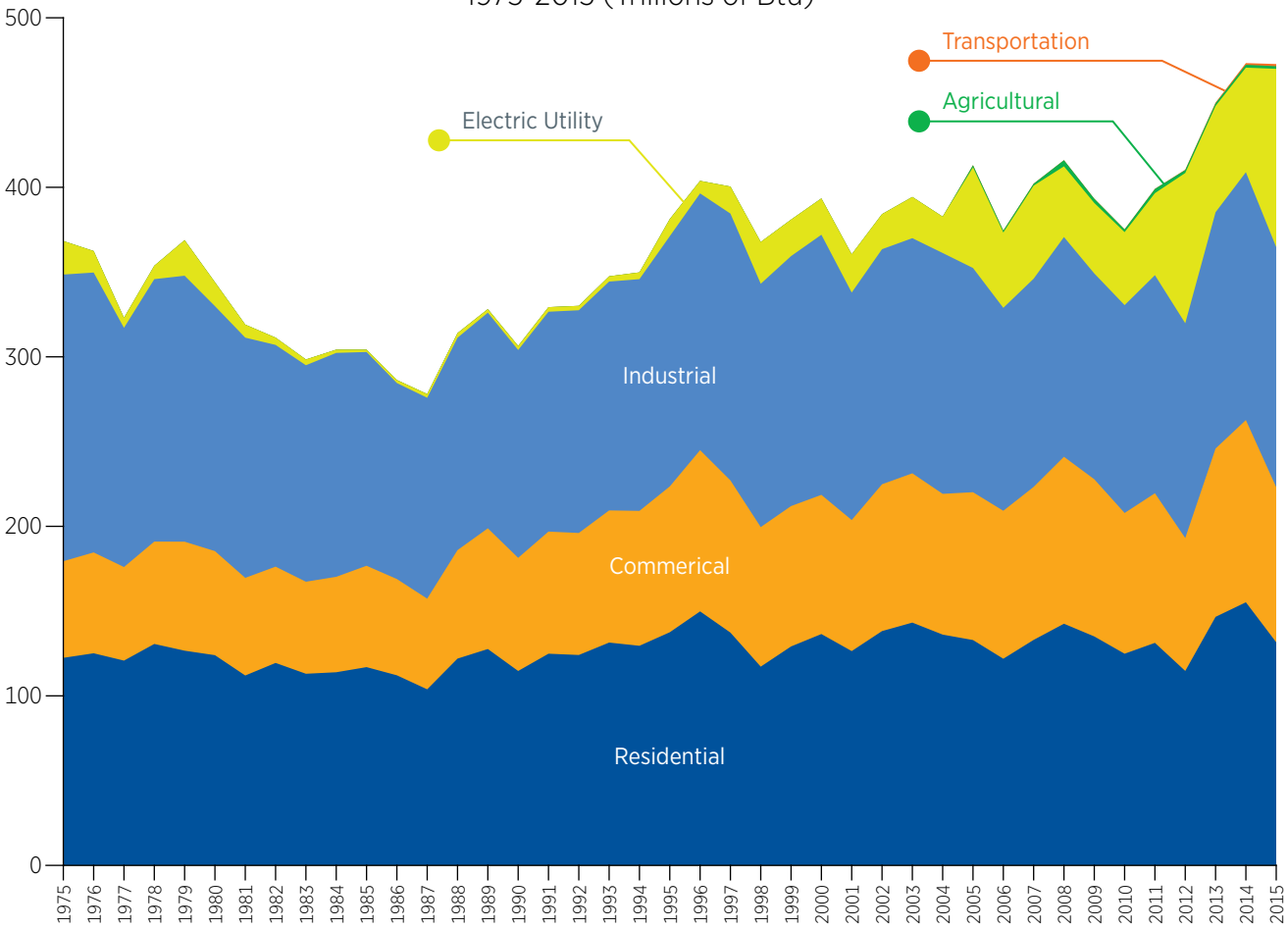
c Includes compressed (CNG) and liquefied (LNG) natural gas used for vehicle fuel.

Source: American Gas Association, Gas Facts https://www.aga.org/gas-facts; Public Service Commission of Wisconsin, Accounts and Finance Division, Statistics of Wisconsin Public Utilities, Bulletin #8 (1970-1994), Operating Revenue and Expense Statistics Class A and B Utilities in Wisconsin (1990-1993), Form PSC-AF2 Monthly Finanical and Statistical Reports (1994-2007) http://apps.psc.wi.gov/vs2015/ERF/ERFhome.aspx; U.S. Department of Agriculture, National Agricultural Statistics Service (2005 – 2015) unpublished data; U.S. Department of Energy, Natural Gas Annual (March 2013) http://www.eia.gov/naturalgas/annual/, Natural Gas Monthly (March 2013) http://www.eia.gov/naturalgas/monthly/; Wisconsin Department of Revenue, Fuel Tax Statistical Report (1996-2012), Federal Highway Report (1996-2015) https://www.revenue.wi.gov/Pages/ISE/Excise_Fuel-Home.aspx.

Wisconsin Natural Gas Use, by Economic Sector
2015 (Trillions of Btu and Percent of Total)

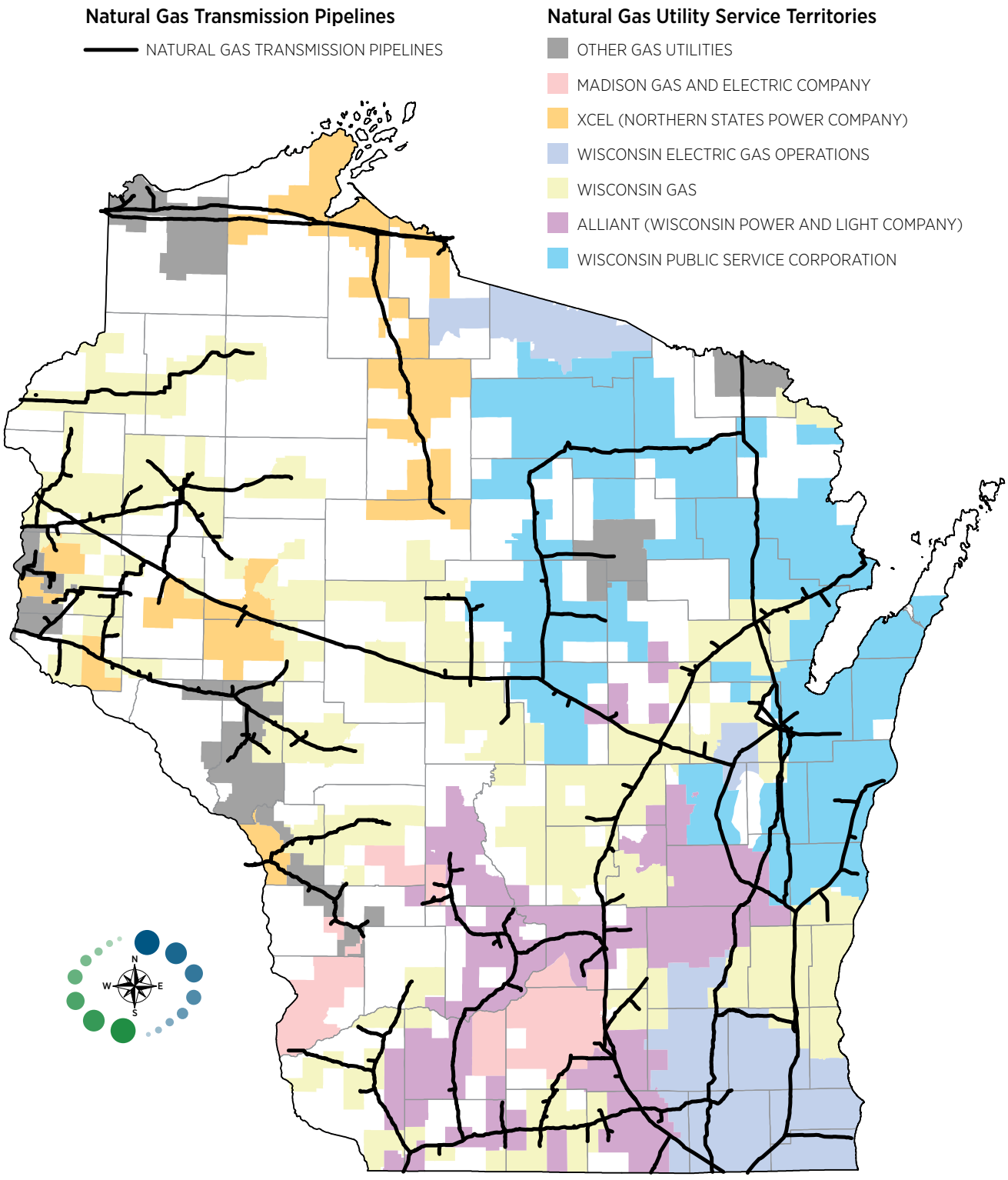


Wisconsin Natural Gas Use, by Economic Sector
1975-2015 (Trillions of Btu)



Wisconsin Natural Gas Utility Service Territories and Major Pipelines

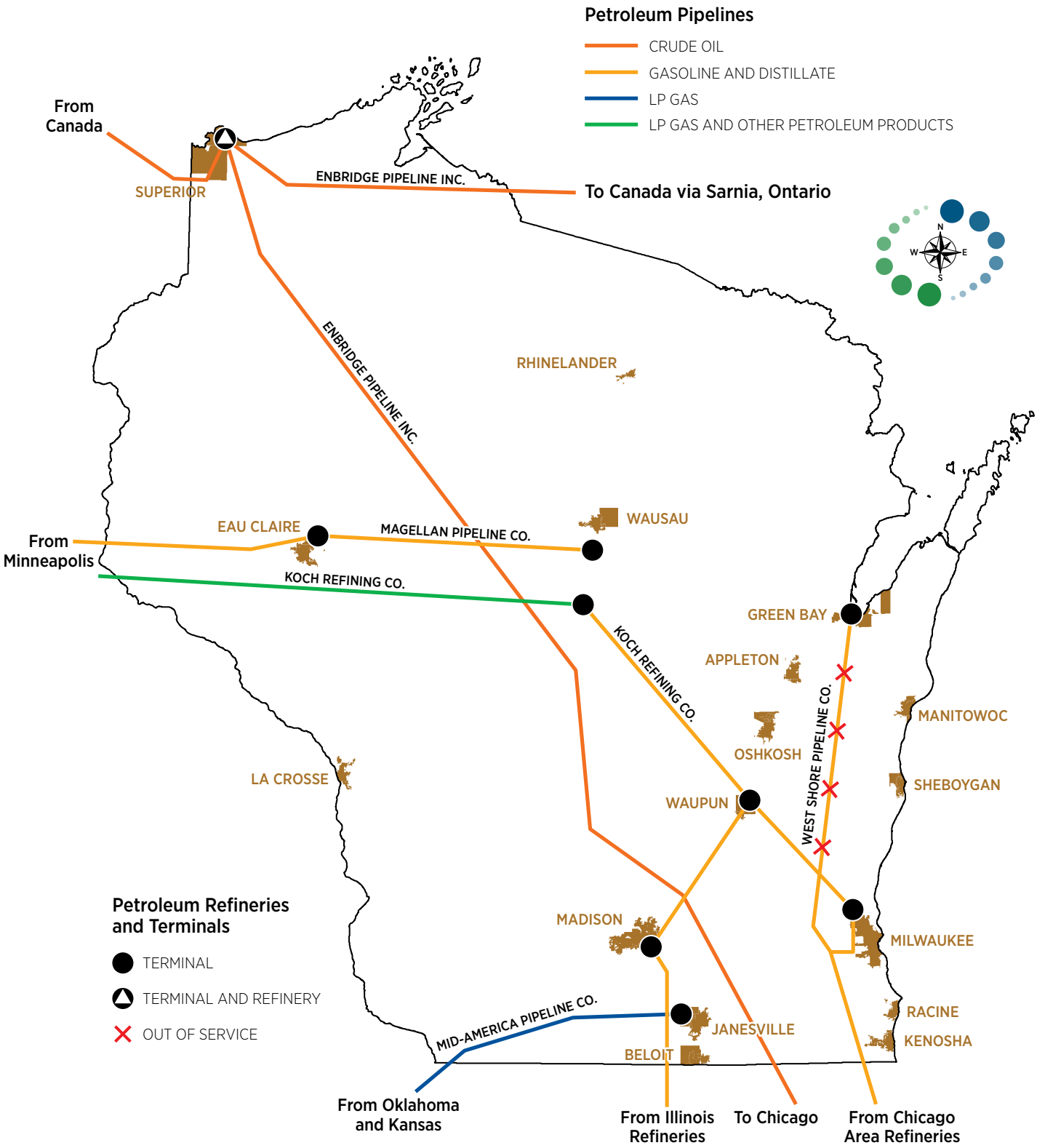
2015



Source: Public Service Commission of Wisconsin.

Wisconsin Petroleum Pipelines

2015



Source: Public Service Commission of Wisconsin.

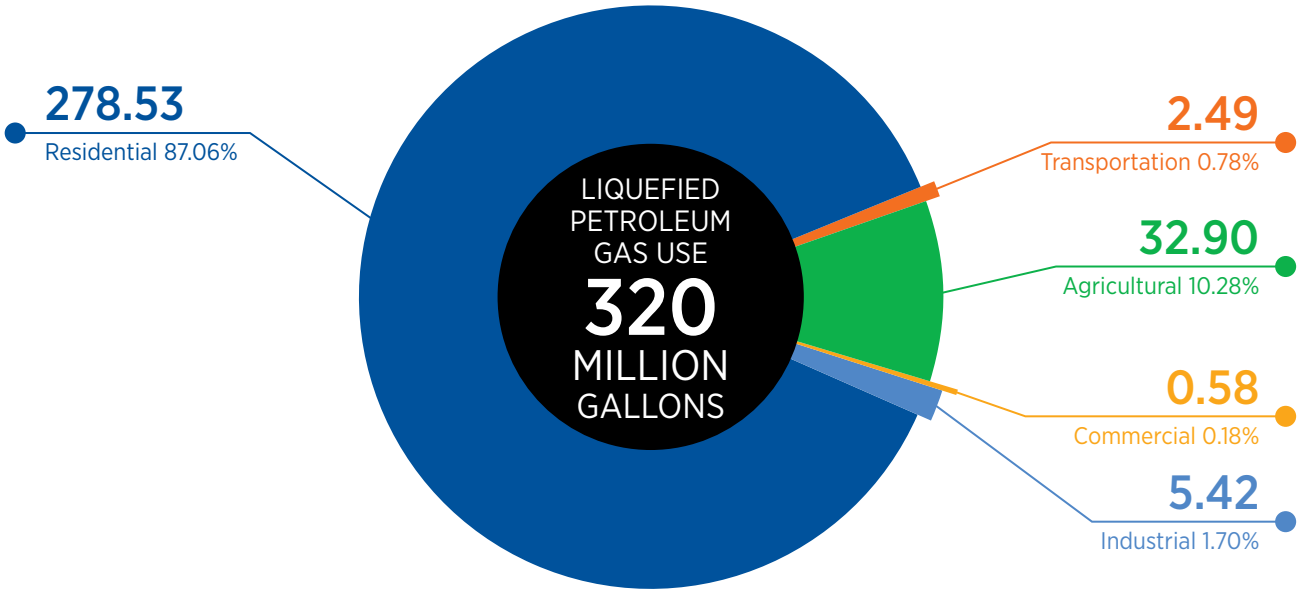
Wisconsin Liquefied Petroleum Gas Use, by Economic Sector

1975-2015 (Millions of Gallons)

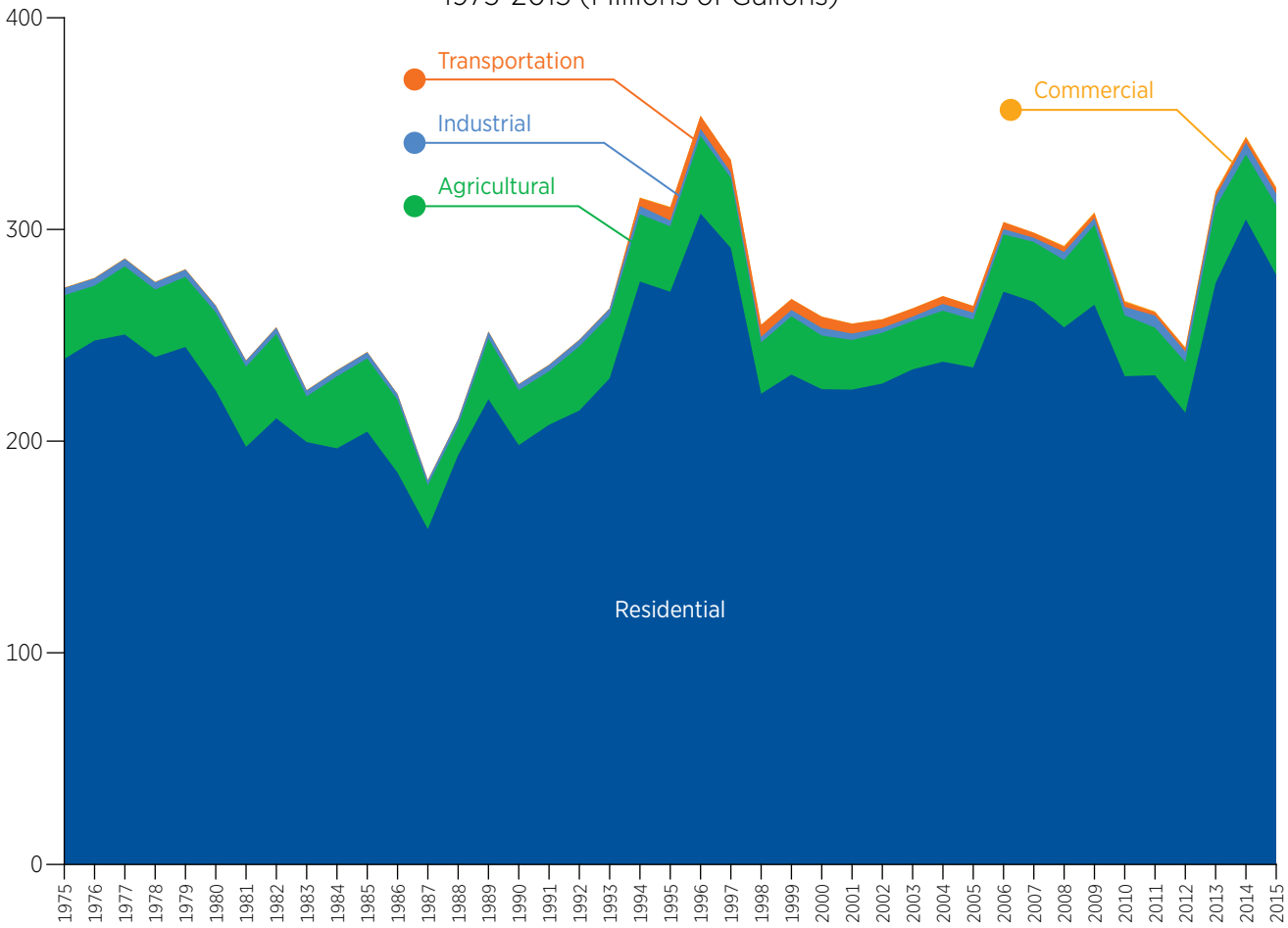
Year	Agricultural	Commercial	Industrial	Residential	Transportation	Total
1975	30.10	0.27	3.38	238.84		272.60
1976	25.90	0.28	3.51	247.51		277.20
1977	32.20	0.29	3.55	250.37		286.40
1978	31.90	0.27	3.40	239.73		275.30
1979	33.10	0.28	3.46	244.46		281.30
1980	36.90	0.26	3.17	223.87		264.20
1981	37.90	0.23	2.79	197.28		238.20
1982	39.90	0.24	2.99	210.77		253.90
1983	21.53	0.23	2.83	199.57		224.15
1984	34.00	0.22	2.78	196.57		233.57
1985	34.60	0.23	2.90	204.46		242.18
1986	34.44	0.21	2.62	185.06		222.33
1987	20.73	0.18	2.24	158.45		181.60
1988	14.17	0.22	2.74	193.41		210.54
1989	28.76	0.25	3.11	219.76		251.89
1990	25.93	0.23	2.81	198.08		227.04
1991	25.29	0.24	2.94	207.71		236.18
1992	30.29	0.24	3.04	214.43		248.01
1993	29.68	0.26	3.25	229.65		262.85
1994	31.79	0.31	3.90	275.38	3.73	315.11
1995	30.87	0.33	2.81	270.58	6.11	310.70
1996	36.79	0.18	3.33	307.50	6.00	353.81
1997	33.08	0.11	2.66	291.22	5.82	332.89
1998	24.20	0.12	2.64	222.38	5.66	254.99
1999	27.56	0.13	2.95	231.44	5.11	267.19
2000	25.34	0.18	3.58	224.53	5.25	258.87
2001	23.45	0.16	3.06	224.31	4.57	255.55
2002	24.00	0.15	2.30	227.20	3.96	257.61
2003	22.83	0.14	2.08	233.90	3.82	262.76
2004	24.10	0.12	3.19	237.51	3.65	268.56
2005	22.61	0.19	3.31	234.80	3.01	263.91
2006	27.07	0.18	2.48	270.61	3.22	303.56
2007	28.35	0.15	1.98	265.73	2.33	298.55
2008	31.80	0.52	3.85	253.74	2.39	292.30
2009	37.83	0.52	3.15	264.42	2.20	308.13
2010	28.74	0.58	3.99	230.67	2.26	266.24
2011	22.53	0.40	5.69	231.08	1.58	261.27
2012	23.97	0.39	4.85	213.45	1.63	244.28
2013	35.87	0.64	4.91	274.65	1.97	318.03
2014	30.72	0.61	5.58	304.72	2.30	343.93
2015	32.90	0.58	5.42	278.53	2.49	319.93

Source: U.S. Department of Energy, Form EIA-25 Prime Supplier's Monthly Report (1974-2012), Form EIA-782C Monthly Report of Petroleum Products Sold into States for Consumption (1982 – 2015) http://www.eia.gov/petroleum/marketing/prime/; National Agriculture Statistics Service, (2005-2012) Unpublished data, Value added by US agriculture (includes net farm income) (2013-2015) http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/value-added-years-by-state.aspx; Wisconsin Department of Revenue, Federal Highway Report (2008 – 2015) https://www.revenue.wi.gov/Pages/ISE/Excise_Fuel-Home.aspx#fuelstat; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1972-2015) Unpublished data.

Wisconsin Liquefied Petroleum Gas Use, by Economic Sector
2015 (Millions of Gallons and Percent of Total)



Wisconsin Liquefied Petroleum Gas Use, by Economic Sector
1975-2015 (Millions of Gallons)



Monthly Petroleum Product Deliveries and Sales in Wisconsin

2013-2015 (Millions of Gallons)

Year / Month	Off-Road Distillate[a]	On-Road Distillate[b]	Liquefied Petroleum Gas	Motor Gasoline[c]	Total Monthly Fuel Deliveries
2013					
January	8.63	61.29	49.58	210.56	330.06
February	7.12	56.73	38.34	148.79	250.98
March	6.13	56.54	31.34	159.26	253.26
April	4.43	64.15	22.25	189.23	280.05
May	5.41	31.09	10.58	119.20	166.29
June	5.44	96.89	9.88	274.26	386.46
July	6.14	19.02	10.79	113.32	149.27
August	6.77	49.75	14.71	126.91	198.15
September	5.81	72.47	13.57	207.95	299.80
October	6.66	64.39	28.28	183.08	282.40
November	6.92	62.93	37.15	177.63	284.63
December	10.29	91.12	51.57	266.55	419.53
2013 Total	**79.75**	**726.37**	**318.03**	**2,176.74**	**3,300.89**
2014					
January	12.17	61.41	50.40	166.02	289.99
February	10.50	52.94	36.73	149.53	249.70
March	6.26	55.06	32.41	176.78	270.51
April	5.02	47.17	22.31	148.29	222.78
May	5.25	56.33	15.01	176.83	253.42
June	5.82	125.28	12.78	347.17	491.05
July	6.39	65.53	17.55	209.90	299.37
August	6.10	66.36	16.43	210.04	298.92
September	10.61	64.94	22.95	186.92	285.42
October	8.93	70.17	28.53	191.23	298.85
November	12.72	59.33	42.65	176.00	290.69
December	12.51	70.07	46.27	195.93	324.78
2014 Total	**102.28**	**794.58**	**344.00**	**2,334.63**	**3,575.49**
2015					
January	15.98	60.84	50.05	189.08	315.95
February	15.06	61.41	46.80	180.25	303.51
March	10.80	61.49	32.50	182.79	287.57
April	5.59	56.26	17.76	177.78	257.39
May	4.58	75.55	15.15	219.66	314.94
June	6.46	62.81	15.46	182.43	267.16
July	6.81	75.34	17.02	233.27	332.44
August	5.84	62.46	16.41	211.81	296.52
September	5.82	69.28	17.85	203.47	296.41
October	6.54	84.09	26.85	298.69	416.16
November	8.21	50.60	27.13	72.09	158.02
December	7.85	62.46	36.97	188.85	296.13
2015 Total	**99.53**	**782.58**	**319.93**	**2,340.17**	**3,542.22**

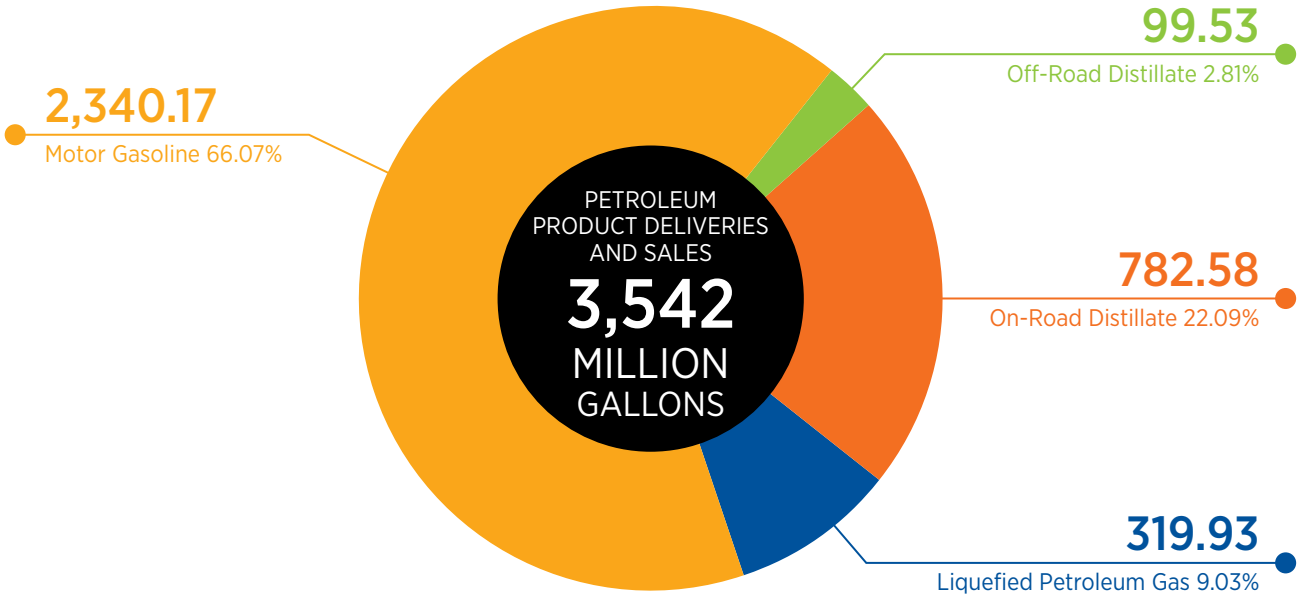
a Includes kerosene, No. 1 & No. 2 fuel oil, jet fuel, and aviation gasoline. Does not include non-taxed diesel fuel used on farms.

b On-road diesel fuel sales in Wisconsin.

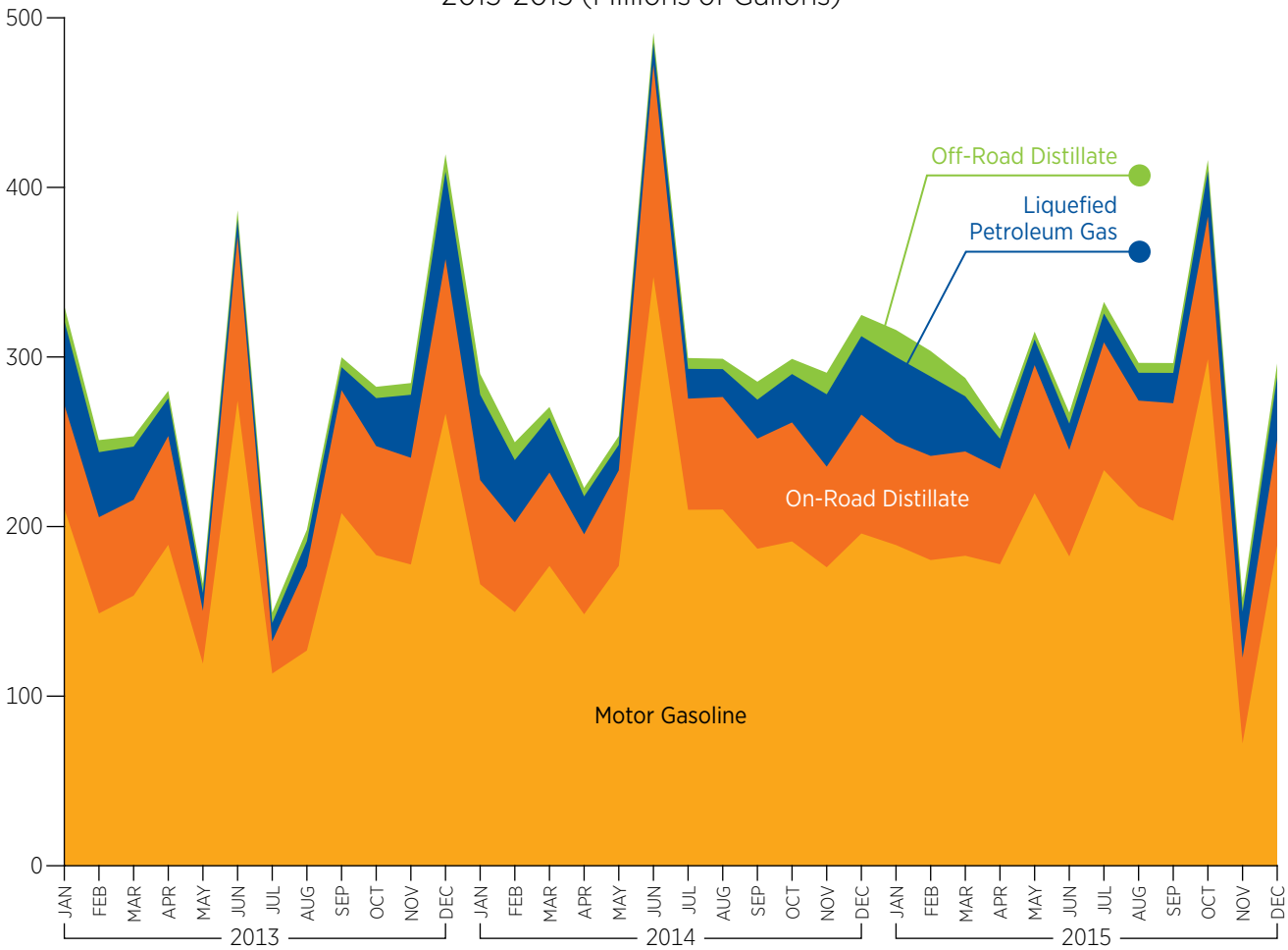
c Motor gasoline sales; does not include aviation gasoline or ethanol.

Source: Wisconsin Department of Revenue, Federal Highway Report (2012-2015) https://www.revenue.wi.gov/Pages/ISE/Excise_Fuel-Home.aspx.

Monthly Petroleum Product Deliveries and Sales in Wisconsin
2015 (Millions of Gallons and Percent of Total)



Monthly Petroleum Product Deliveries and Sales in Wisconsin
2013-2015 (Millions of Gallons)



Wisconsin Petroleum Use, by Type of Product

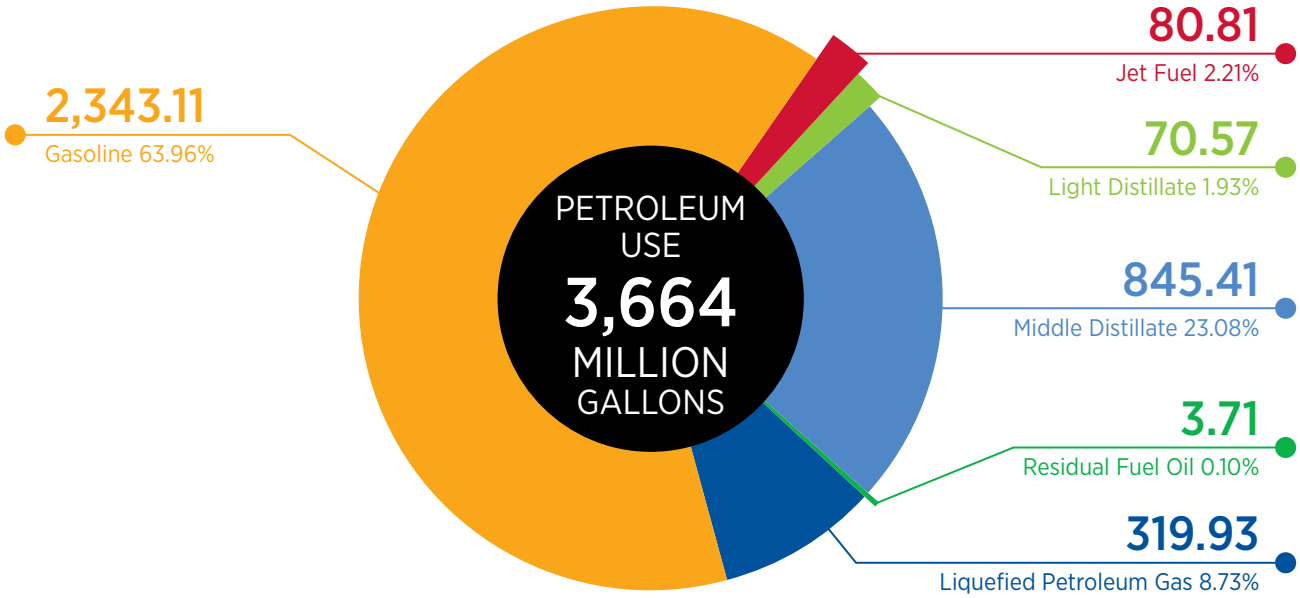
1975-2015 (Millions of Gallons)

Year	Gasoline[a]	Jet Fuel	Light Distillate	Liquefied Petroleum Gas	Middle Distillate	Residual Fuel Oil	Total
1975	2,203.50	72.40	125.00	272.60	962.80	88.80	3,725.10
1980	2,170.50	81.40	83.40	264.20	899.40	73.50	3,572.40
1981	2,086.20	72.50	71.20	238.20	814.00	65.70	3,347.80
1982	2,017.80	69.27	75.21	253.90	744.03	28.24	3,188.46
1983	2,007.37	58.50	69.69	224.15	770.91	23.31	3,153.92
1984	2,033.19	57.18	103.52	233.57	881.58	16.79	3,325.82
1985	2,033.34	62.17	97.92	242.18	832.29	11.16	3,279.06
1986	2,086.16	58.86	84.77	222.33	815.24	41.33	3,308.70
1987	2,107.33	60.08	84.73	181.60	802.66	47.86	3,284.25
1988	2,157.42	68.01	88.80	210.54	877.00	42.61	3,444.39
1989	2,153.40	79.12	92.89	251.89	890.06	44.08	3,511.43
1990	2,139.53	81.63	77.95	227.04	867.68	41.19	3,435.01
1991	2,125.63	87.86	90.70	236.18	849.36	31.31	3,421.04
1992	2,187.87	85.85	88.85	248.01	844.05	28.54	3,483.16
1993	2,243.88	80.43	94.65	262.85	907.77	42.18	3,631.75
1994	2,251.56	82.99	91.40	315.11	906.08	45.95	3,693.10
1995	2,266.56	78.56	84.51	310.70	911.12	30.36	3,681.81
1996	2,319.81	82.00	89.31	353.80	934.18	38.73	3,817.84
1997	2,357.36	83.97	95.00	332.89	952.63	41.74	3,863.59
1998	2,410.33	85.02	95.95	254.99	962.60	43.66	3,852.56
1999	2,473.68	87.40	102.27	267.19	1,009.46	51.64	3,991.65
2000	2,431.17	87.00	95.54	258.87	984.60	45.82	3,903.00
2001	2,450.17	85.00	95.20	255.55	988.93	46.69	3,921.55
2002	2,533.72	88.19	91.59	257.61	971.24	47.52	3,989.86
2003	2,549.02	86.13	88.71	262.76	995.84	39.99	4,022.45
2004	2,555.55	92.53	92.30	268.56	1,021.90	46.61	4,077.45
2005	2,474.59	105.68	84.57	263.91	928.06	57.47	3,914.27
2006	2,393.56	102.94	84.06	303.56	958.96	35.02	3,878.10
2007	2,434.19	94.55	76.50	298.52	963.88	40.06	3,907.71
2008	2,303.53	102.41	78.49	292.30	942.04	25.83	3,744.60
2009	2,283.66	104.71	66.68	308.13	791.04	12.22	3,566.43
2010	2,334.66	96.89	70.49	266.24	807.01	4.41	3,579.69
2011	2,309.86	84.04	69.22	261.26	802.43	4.83	3,531.64
2012	2,211.76	62.79	68.53	244.28	834.64	4.67	3,426.66
2013	2,178.93	65.90	65.95	318.03	790.31	3.13	3,422.24
2014	2,337.15	82.15	72.22	343.93	873.87	2.73	3,712.05
2015	2,343.11	80.81	70.57	319.93	845.41	3.71	3,663.54

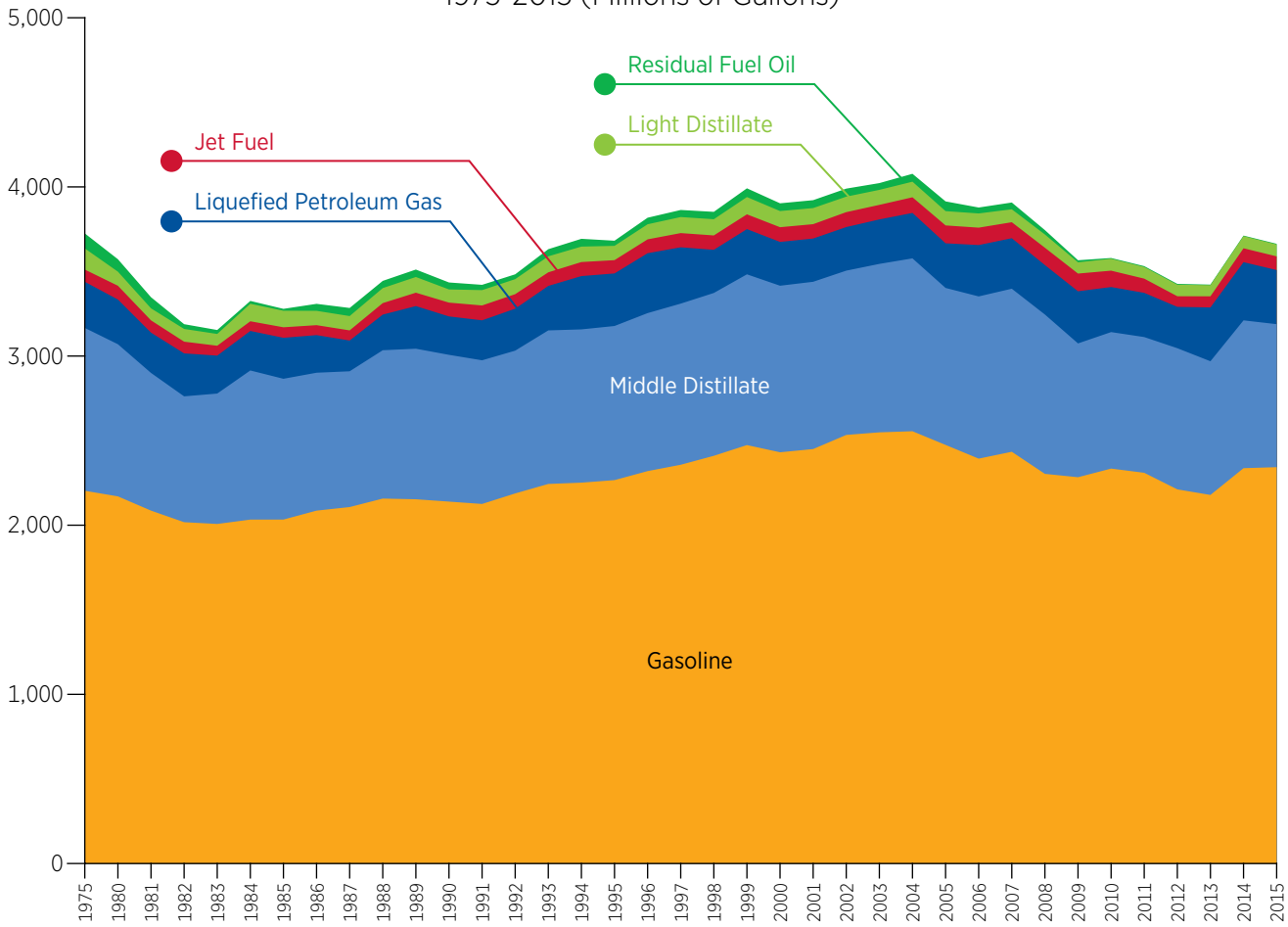
a Includes vehicle and aviation gasoline; does not include ethanol.

Source: National Agriculture Statistics Service, (2005-2012) Unpublished data, Value added by US agriculture (includes net farm income) (2013-2015) http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/value-added-years-by-state.aspx; Personal communication, airport fixed based operators (2000-2009), railroad companies (2000-2015); U.S. Department of Energy, Form EIA-782C Monthly Report of Petroleum Products Sold into States for Consumption (1982 – 2015) http://www.eia.gov/petroleum/marketing/prime/; Wisconsin Department of Commerce, Bureau of Petroleum Inspection, Report on Petroleum Products Inspected and Delivered to Wisconsin (1970-1995) http://datcp.wi.gov/Consumer/Weights_and_Measures/Liquefied_Petroleum_Gas/index.aspx; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1972-2015) Unpublished data; Wisconsin Department of Revenue, Collection of Petroleum Inspection Fees (1996-2006), Fuel Tax Statistical Report (1996-2012);,Federal Highway Report (1996-2015) https://www.revenue.wi.gov/Pages/ISE/Excise_Fuel-Home.aspx.

Wisconsin Petroleum Use, by Type of Product
2015 (Millions of Gallons and Percent of Total)



Wisconsin Petroleum Use, by Type of Product
1975-2015 (Millions of Gallons)



Wisconsin Petroleum Use, by Economic Sector

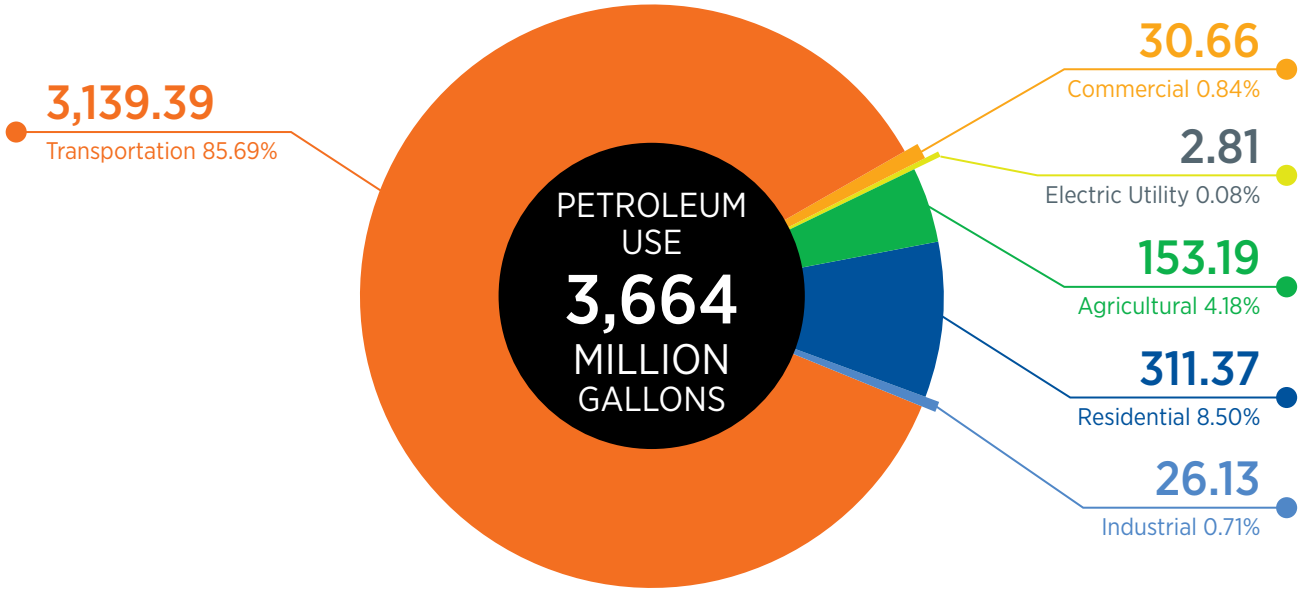
1982-2015 (Millions of Gallons)

Year	Agricultural	Commercial	Electric Utility	Industrial	Residential	Transportation[a]	Total
1982	166.72	37.66	12.31	43.93	537.19	2,390.65	3,188.46
1983	133.88	60.81	10.56	40.34	498.99	2,409.34	3,153.92
1984	153.78	203.31	7.64	34.26	468.49	2,458.51	3,325.99
1985	151.90	140.83	9.90	21.16	487.46	2,467.81	3,279.07
1986	147.29	88.64	10.57	53.91	475.13	2,533.16	3,308.70
1987	120.90	86.76	7.21	72.49	425.13	2,571.82	3,284.31
1988	110.42	90.51	8.65	65.19	481.85	2,687.87	3,444.48
1989	129.16	116.32	7.50	59.09	494.42	2,705.01	3,511.51
1990	124.42	101.33	7.00	56.53	432.68	2,713.12	3,435.07
1991	121.11	90.98	7.00	45.45	426.03	2,730.60	3,421.17
1992	125.34	76.28	7.00	40.42	420.14	2,814.09	3,483.26
1993	121.46	75.61	7.00	69.33	456.12	2,902.28	3,631.82
1994	124.58	59.26	7.00	78.53	468.64	2,955.17	3,693.18
1995	122.78	48.52	6.00	76.77	433.67	2,994.17	3,681.90
1996	127.18	48.69	6.76	90.71	477.40	3,067.16	3,817.90
1997	121.04	61.00	11.17	103.08	434.04	3,133.34	3,863.67
1998	112.43	73.74	13.02	97.66	347.09	3,208.69	3,852.63
1999	118.59	73.95	14.32	113.50	377.79	3,293.73	3,991.88
2000	114.18	67.95	11.38	105.01	359.53	3,245.07	3,903.12
2001	110.17	73.70	15.58	96.71	368.35	3,257.10	3,921.60
2002	112.57	69.61	10.84	89.18	351.87	3,356.07	3,990.13
2003	113.05	81.25	12.77	90.39	366.21	3,358.79	4,022.45
2004	111.38	66.65	13.02	104.59	361.48	3,420.34	4,077.45
2005	107.87	64.98	13.61	117.24	346.76	3,263.81	3,914.27
2006	135.17	40.97	11.13	103.91	368.18	3,218.75	3,878.12
2007	148.93	43.20	13.57	116.65	348.02	3,237.46	3,907.82
2008	141.27	55.09	7.69	84.54	342.57	3,113.52	3,744.67
2009	170.25	40.91	4.07	43.42	316.23	2,991.56	3,566.44
2010	144.50	27.52	3.65	26.71	276.21	3,101.11	3,579.69
2011	130.54	33.93	3.57	25.88	270.38	3,067.34	3,531.65
2012	144.46	32.45	4.20	31.13	243.61	2,970.81	3,426.66
2013	151.40	26.53	2.98	30.64	308.19	2,902.50	3,422.24
2014	158.69	29.75	5.29	32.53	343.53	3,142.25	3,712.05
2015	153.19	30.66	2.81	26.13	311.37	3,139.39	3,663.54

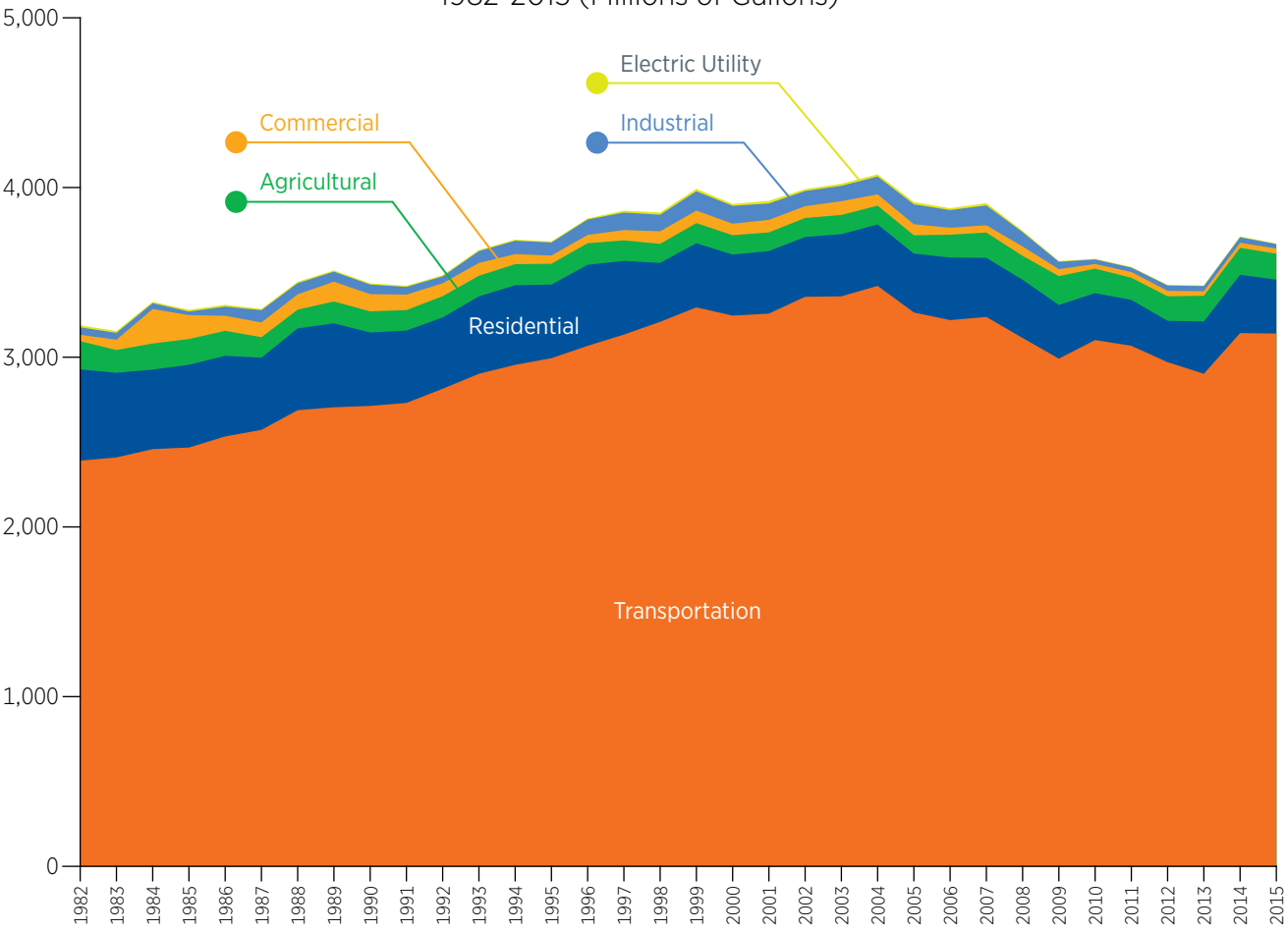
a Does not include ethanol.

Source: National Agriculture Statistics Service, (2005-2012) Unpublished data, Value added by US agriculture (includes net farm income) (2013-2015) http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/value-added-years-by-state.aspx; U.S. Department of Energy, Form EIA-782C Monthly Report of Petroleum Products Sold into States for Consumption (1982 – 2015) http://www.eia.gov/petroleum/marketing/prime/; Wisconsin Department of Commerce, Bureau of Petroleum Inspection, Report on Petroleum Products Inspected and Delivered to Wisconsin (1970-1995) http://datcp.wi.gov/Consumer/Weights_and_Measures/Liquefied_Petroleum_Gas/index.aspx; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1972-2015) Unpublished data; Wisconsin Department of Revenue, Collection of Petroleum Inspection Fees (1996-2006), Fuel Tax Statistical Report (1996-2012), Federal Highway Report (1996-2015) https://www.revenue.wi.gov/Pages/ISE/Excise_Fuel-Home.aspx.

Wisconsin Petroleum Use, by Economic Sector
2015 (Millions of Gallons and Percent of Total)



Wisconsin Petroleum Use, by Economic Sector
1982-2015 (Millions of Gallons)



Wisconsin Petroleum Use, by Economic Sector

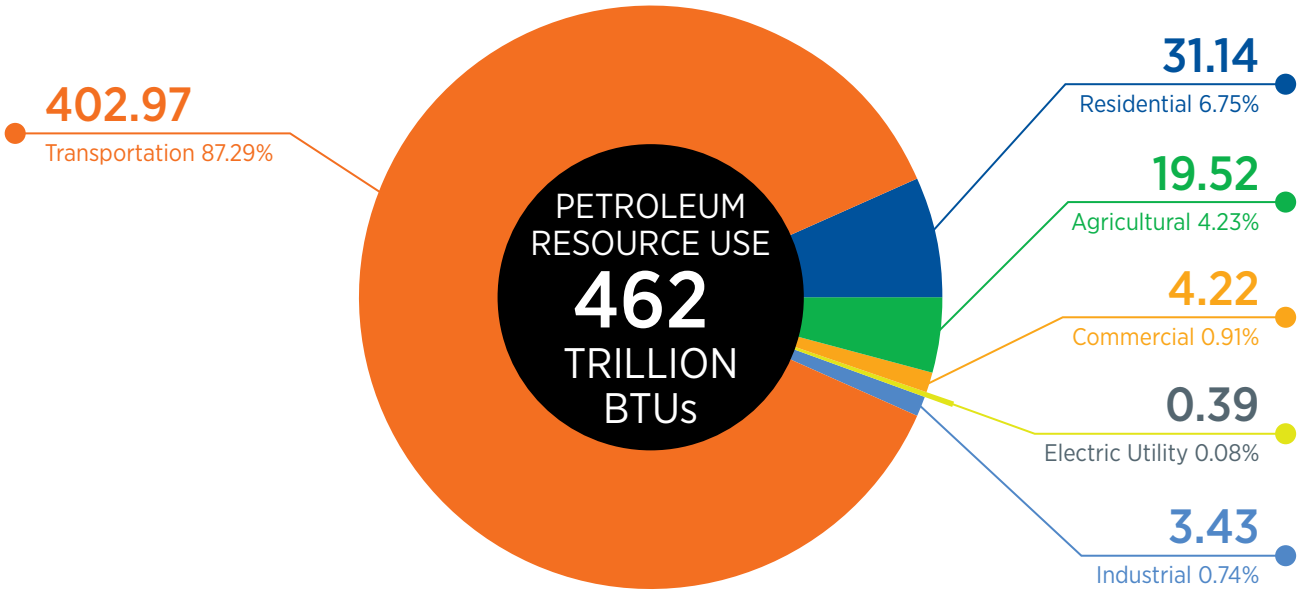
1975-2015 (Trillions of Btu)

Year	Agricultural	Commercial	Electric Utility	Industrial	Residential	Transportation[a]	Total Resource Use	Total End-Use
1975	18.80	27.50	7.80	19.30	87.60	314.00	475.00	467.20
1976	18.30	31.60	8.60	24.10	85.60	333.00	501.20	492.60
1977	19.10	33.50	11.00	30.30	80.60	344.30	518.80	507.80
1978	19.00	27.90	15.60	29.50	77.70	359.80	529.50	513.90
1979	20.20	26.60	7.70	18.00	72.50	355.40	500.40	492.70
1980	21.40	14.60	4.80	13.20	71.20	329.20	454.40	449.60
1981	21.00	11.20	2.30	12.10	61.60	317.40	425.60	423.30
1982	21.01	5.20	1.71	6.25	65.26	303.95	403.38	401.67
1983	17.32	8.41	1.46	5.66	60.48	306.69	400.03	398.56
1984	19.55	28.10	1.06	4.71	56.34	313.16	422.92	421.86
1985	19.29	19.51	1.37	2.82	58.62	314.38	416.00	414.63
1986	18.69	12.38	1.47	7.64	57.76	322.69	420.63	419.17
1987	15.67	12.05	1.00	10.41	51.99	327.66	418.78	417.78
1988	14.52	12.64	1.20	9.26	58.34	343.00	438.96	437.76
1989	16.50	16.25	1.04	8.38	58.95	345.38	446.49	445.45
1990	15.98	14.12	0.97	8.06	51.36	346.66	437.16	436.19
1991	15.58	12.67	0.97	6.43	50.00	349.20	434.84	433.87
1992	15.95	10.64	0.97	5.68	48.92	359.92	442.08	441.11
1993	15.46	10.53	0.97	9.84	53.25	371.38	461.43	460.45
1994	15.80	8.25	0.97	11.14	53.02	378.43	467.61	466.64
1995	15.59	6.74	0.83	10.78	48.40	383.56	465.91	465.07
1996	15.95	6.79	0.94	12.76	52.86	392.94	482.24	481.30
1997	15.27	8.50	1.55	14.53	47.56	401.58	488.98	487.43
1998	14.46	10.34	1.81	13.73	38.48	411.30	490.11	488.30
1999	15.16	10.32	1.99	16.02	42.33	422.24	508.06	506.07
2000	14.65	9.48	1.58	14.79	40.10	416.06	496.66	495.09
2001	14.18	10.32	2.16	13.64	41.33	417.50	499.14	496.98
2002	14.49	9.80	1.50	12.59	38.92	430.10	507.39	505.89
2003	14.60	11.43	1.77	12.69	40.64	430.29	511.41	509.64
2004	14.32	9.33	1.81	14.75	39.83	438.70	518.74	516.93
2005	13.55	9.12	1.89	16.56	37.91	418.49	497.51	495.63
2006	17.21	5.69	1.54	14.57	39.34	413.28	491.64	490.10
2007	19.02	5.99	1.88	16.41	36.76	415.40	495.46	493.58
2008	17.89	7.60	1.07	11.83	36.52	399.87	474.79	473.72
2009	21.57	5.64	0.57	5.98	32.42	383.34	449.52	448.95
2010	18.46	3.79	0.51	3.57	28.33	397.78	452.43	451.92
2011	16.83	4.69	0.50	3.39	27.50	393.47	446.38	445.88
2012	18.69	4.48	0.58	4.16	24.56	381.51	433.97	433.39
2013	19.16	3.65	0.41	4.07	30.87	372.45	430.60	430.19
2014	20.34	4.10	0.73	4.30	34.47	403.49	467.43	466.69
2015	19.52	4.22	0.39	3.43	31.14	402.97	461.68	461.29

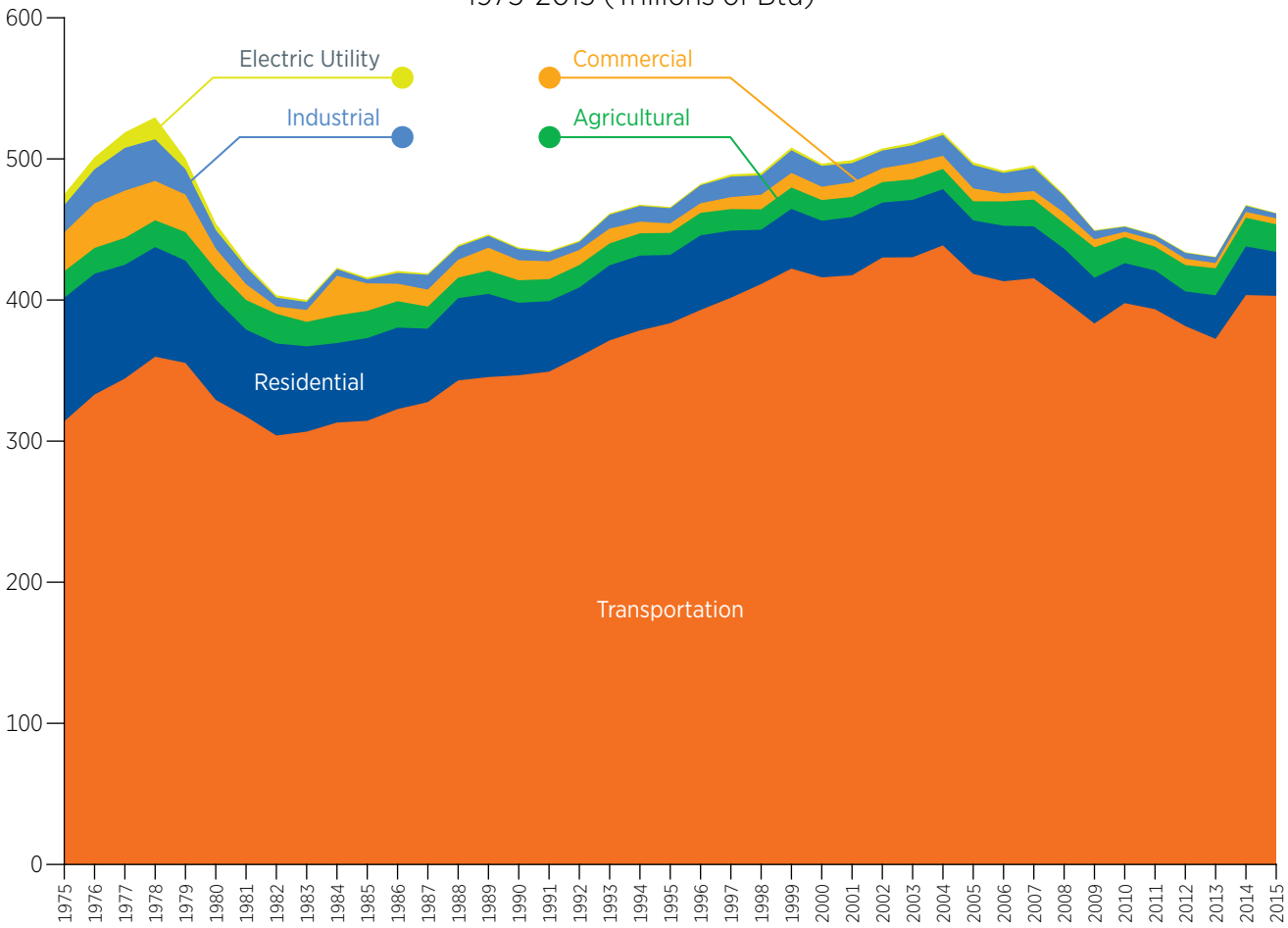
a Does not include ethanol.

Source: National Agriculture Statistics Service, (2005-2012) Unpublished data, Value added by US agriculture (includes net farm income) (2013-2015) http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/value-added-years-by-state.aspx; U.S. Department of Energy, Form EIA-782C Monthly Report of Petroleum Products Sold into States for Consumption (1982 – 2015) http://www.eia.gov/petroleum/marketing/prime/; Wisconsin Department of Commerce, Bureau of Petroleum Inspection, Report on Petroleum Products Inspected and Delivered to Wisconsin (1970-1995) http://datcp.wi.gov/Consumer/Weights_and_Measures/Liquefied_Petroleum_Gas/index.aspx; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1972-2015) Unpublished data; Wisconsin Department of Revenue, Collection of Petroleum Inspection Fees (1996-2006), Fuel Tax Statistical Report (1996-2012), Federal Highway Report (1996-2015) https://www.revenue.wi.gov/Pages/ISE/Excise_Fuel-Home.aspx.

Wisconsin Petroleum Use, by Economic Sector
2015 (Trillions of Btu and Percent of Total)



Wisconsin Petroleum Use, by Economic Sector
1975-2015 (Trillions of Btu)



Agricultural Energy Use

Agriculture plays a vital role in Wisconsin's economy. Popularly known as America's Dairyland, more than just milk and cheese are produced and processed in the state. Wisconsin ranks first in the nation in: snap beans for processing, cheese, cranberries, ginseng, mink pelts, dry whey for humans, milk goats and corn for silage.[1] The agricultural sector is a large energy consumer – consuming predominately petroleum fuels, electricity, and natural gas to power on-farm operations and residences.

In 2015, the agricultural sector consumed 153.19 million gallons of fuel. Diesel fuel consumption accounts for 63 percent of all agricultural fuel used for a total of 96.61 million gallons – with the majority of fuel used by agricultural equipment needed for growing and harvesting crops. Together with motor gasoline, these two fuels accounted for 119 million gallons, more than 78 percent of all agricultural fuel used in 2015.

There continues to be opportunities to explore and expand energy efficiency as well as the potential for energy production. The Office of Energy Innovation and Focus on Energy promote the efficient use of electricity and natural gas in the agricultural industry. Improved ventilation strategies can save money and natural resources while increasing milk production and reproduction in dairy facilities.

After heat and stress in the summer of 2012 led to a drop in milk production, a dairy farm in eastern Wisconsin built a tunnel ventilated barn to keep the barn's 2,100 cows comfortable. The project was so successful, other natural ventilated barns were also retrofitted to tunnel ventilation with the help of a Focus on Energy Trade Ally and incentives from Focus on Energy.[2]

The Anaerobic Digester System Program, supported by Focus on Energy funding and developed through an interagency workgroup[3], encouraged "hub-and-spoke" networks – a local network of feedstock suppliers fueling a central anaerobic digester. These networks would connect farms in a geographic area and farms with relevant firms with expertise in digester engineering, construction, and operation.

1 Wisconsin Agricultural Statistics, Department of Agriculture, Trade and Consumer Protection https://datcp.wi.gov/Pages/Publications/WIAgStatistics.aspx.
2 Focus on Energy Case Studies: Ventilation Retrofits, Wisconsin Focus on Energy, 2017.
3 Public Service Commission of Wisconsin; Department of Natural Resources; Department of Agriculture, Trade and Consumer Protection.

▲ Agricultural production requires the use of petroleum products to power equipment needed for planting and harvesting.

▲ A thunderstorm looms over a Wisconsin farm with distribution lines overhead.

◀ A Wisconsin barn using tunnel ventilation—energy efficient exhaust fans pull air from one end of the barn to the other.

Wisconsin Agricultural Energy Use by Type of Fuel

1975-2015 (Millions of Gallons and Millions of kWh)

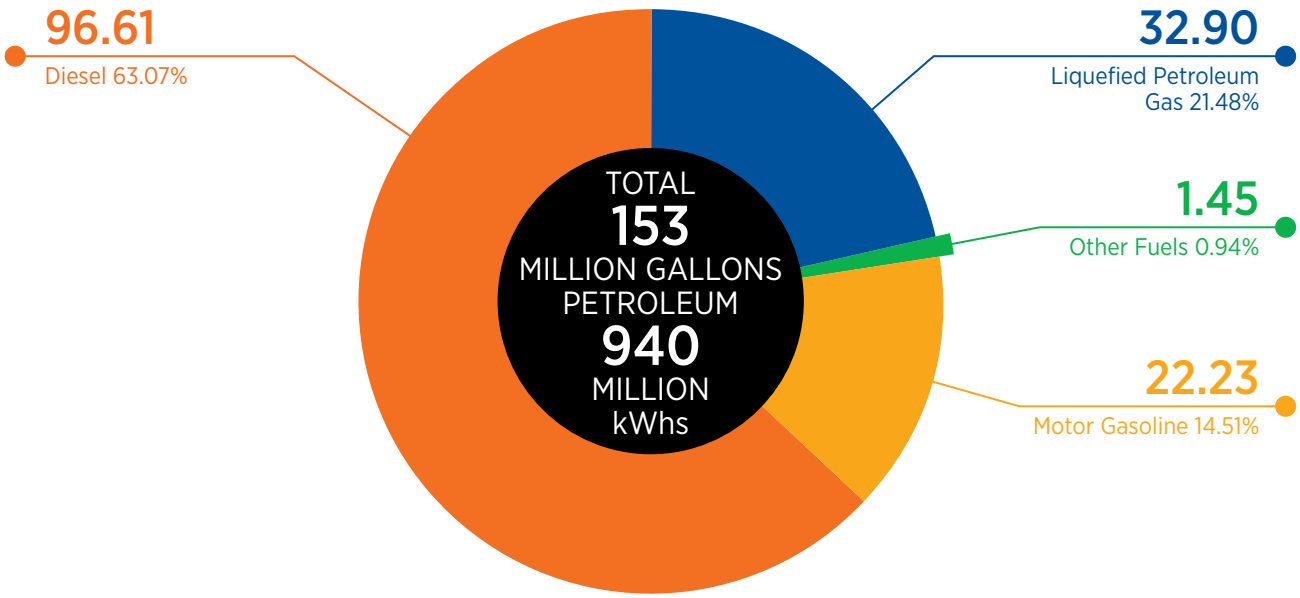
Year	Motor Gasoline	Diesel[a]	Liquefied Petroleum Gas	Other Fuels[b]	Total Petroleum	Electricity (Millions of kWh)
1975	54.30	65.80	30.10		150.20	1,210.00
1976	44.80	74.99	25.90		145.69	1,311.00
1977	39.20	80.03	32.20		151.43	1,376.00
1978	36.80	89.41	31.90		158.11	1,454.00
1979	32.80	99.50	33.10		165.40	1,527.00
1980	33.00	99.30	36.90		169.20	1,539.00
1981	29.60	98.90	37.90		166.40	1,545.00
1982	26.85	99.97	39.90		166.72	1,652.00
1983	21.70	90.63	21.53		133.85	1,582.00
1984	21.40	98.41	34.00		153.81	1,632.00
1985	19.10	98.23	34.60		151.93	1,745.00
1986	16.80	96.06	34.44		147.30	1,707.00
1987	13.50	86.63	20.73		120.86	1,636.00
1988	12.40	83.88	14.17		110.45	1,665.00
1989	11.40	89.04	28.76		129.20	1,655.00
1990	10.10	88.42	25.93		124.45	1,119.62
1991	8.70	87.12	25.29		121.11	1,098.27
1992	8.55	86.50	30.29		125.34	1,066.18
1993	7.34	84.44	29.68		121.46	1,062.60
1994	7.10	85.68	31.79		124.57	1,085.51
1995	6.90	85.00	30.87		122.78	1,078.66
1996	6.34	84.05	36.79		127.18	1,096.19
1997	6.08	81.88	33.08		121.04	1,082.75
1998	6.00	82.23	24.20		112.43	1,027.29
1999	6.10	84.92	27.56		118.58	1,063.97
2000	5.79	83.05	25.34		114.18	1,035.24
2001	5.68	81.04	23.45		110.17	1,071.30
2002	5.84	82.73	24.00		112.57	1,346.06
2003	5.99	84.23	22.83		113.05	1,007.40
2004	5.78	81.50	24.10		111.38	946.34
2005	31.25	52.12	22.61	1.89	107.87	987.84
2006	25.92	79.98	27.07	2.21	135.17	969.67
2007	29.61	89.08	28.35	1.93	148.97	832.55
2008	23.62	83.89	31.80	1.96	141.26	900.10
2009	29.51	98.10	37.83	4.81	170.25	871.54
2010	24.83	89.27	28.74	1.66	144.50	923.36
2011	21.89	84.65	22.53	1.48	130.55	821.91
2012	22.44	97.17	23.97	0.91	144.49	941.90
2013	20.73	93.63	35.87	1.18	151.40	990.21
2014	24.77	101.23	30.72	1.98	158.69	1,094.33
2015	22.23	96.61	32.90	1.45	153.19	940.10

a Includes fuel oil and kerosene 1970-2004.

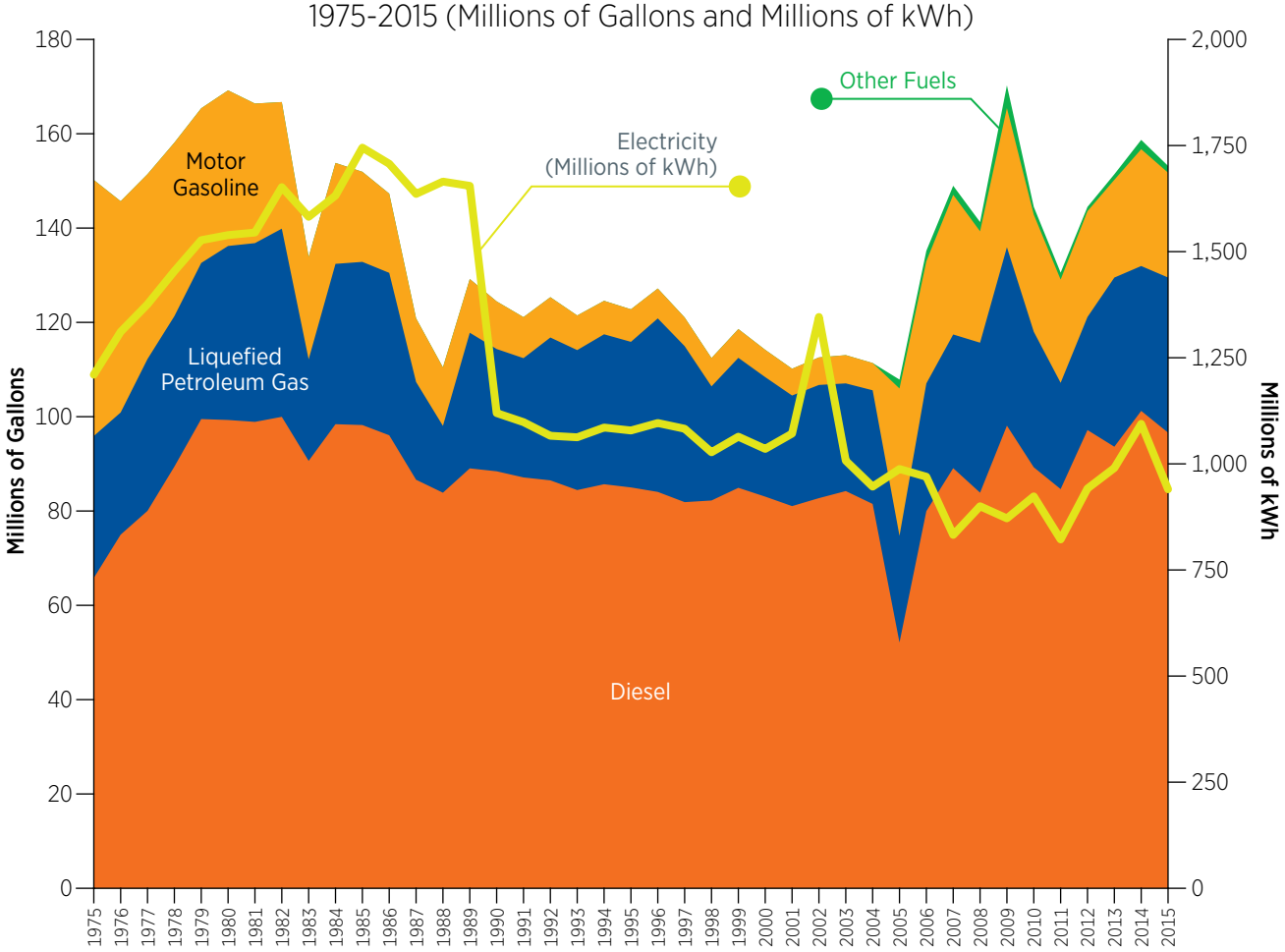
b Primarily distillate and kerosene, may include small amounts of coal and wood.

Source: U.S. Department of Agriculture, National Agriculture Statistics Service, (2003-2012) Unpublished data, Value added by US agriculture (includes net farm income) (2013-2015) http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/value-added-years-by-state.aspx.

Wisconsin Agricultural Energy Use by Type of Fuel
2015 (Millions of Gallons and Percent of Total)



Wisconsin Agricultural Energy Use by Type of Fuel
1975-2015 (Millions of Gallons and Millions of kWh)



Wisconsin Agricultural Energy Use by Type of Fuel

1975-2015 (Trillions of Btu)

Year	Motor Gasoline	Diesel[a]	Liquefied Petroleum Gas	Other Fuels[b]	Total Petroleum	Electricity[c]	Natural Gas[d]	Total End-Use	Total Resource Use
1975	6.80	9.10	2.90		18.80	4.13		22.93	31.72
1976	6.10	9.70	2.50		18.30	4.47		22.77	32.33
1977	5.60	10.40	3.10		19.10	4.70		23.80	33.55
1978	4.90	11.10	3.00		19.00	4.96		23.96	34.72
1979	4.60	12.40	3.20		20.20	5.21		25.41	36.53
1980	4.10	13.80	3.50		21.40	5.25		26.65	37.54
1981	3.70	13.70	3.60		21.00	5.27		26.27	37.41
1982	3.36	13.85	3.81		21.01	5.64		26.65	38.37
1983	2.72	12.55	2.06		17.32	5.40		22.72	33.99
1984	2.67	13.63	3.25		19.55	5.57		25.12	36.68
1985	2.38	13.60	3.30		19.29	5.96		25.25	37.87
1986	2.10	13.30	3.29		18.69	5.83		24.52	37.06
1987	1.69	12.00	1.98		15.67	5.58		21.25	33.43
1988	1.55	11.62	1.35		14.52	5.68		20.20	32.53
1989	1.42	12.33	2.75		16.50	5.65		22.15	34.38
1990	1.26	12.25	2.48		15.98	3.82		19.80	29.04
1991	1.09	12.08	2.41		15.58	3.75		19.33	27.29
1992	1.07	11.99	2.89		15.95	3.64		19.59	27.27
1993	0.92	11.70	2.83		15.46	3.63		19.08	26.87
1994	0.89	11.88	3.04		15.80	3.70		19.50	27.49
1995	0.86	11.78	2.95		15.59	3.68		19.27	28.11
1996	0.79	11.65	3.51		15.95	3.74		19.70	28.00
1997	0.76	11.35	3.16		15.27	3.70		18.96	27.16
1998	0.75	11.40	2.31		14.46	3.51		17.96	25.89
1999	0.76	11.77	2.63		15.16	3.63		18.79	27.12
2000	0.72	11.51	2.42		14.65	3.53		18.18	26.22
2001	0.71	11.23	2.24		14.18	3.66		17.83	26.35
2002	0.73	11.46	2.29		14.49	4.59		19.08	29.02
2003	0.75	11.67	2.18		14.60	3.44		18.04	25.52
2004	0.72	11.30	2.30		14.32	3.23		17.55	24.63
2005	3.91	7.22	2.16	0.26	13.55	3.37	1.26	18.18	25.45
2006	3.24	11.08	2.58	0.31	17.21	3.31	1.11	21.63	28.13
2007	3.70	12.35	2.71	0.27	19.02	2.84	1.14	23.01	29.00
2008	2.95	11.63	3.04	0.27	17.89	3.07	3.64	24.61	31.13
2009	3.69	13.61	3.61	0.67	21.57	2.97	2.52	27.07	33.29
2010	3.10	12.38	2.74	0.23	18.46	3.15	1.62	23.23	29.84
2011	2.74	11.74	2.15	0.21	16.83	2.81	2.49	22.13	27.72
2012	2.80	13.48	2.29	0.13	18.69	3.21	1.77	23.68	29.93
2013	2.59	12.99	3.42	0.16	19.16	3.38	1.54	24.08	30.83
2014	3.10	14.04	2.93	0.27	20.34	3.73	1.70	25.78	32.86
2015	2.78	13.40	3.14	0.20	19.52	3.21	1.52	24.25	30.40

a Includes other light distillates 1970-2005.

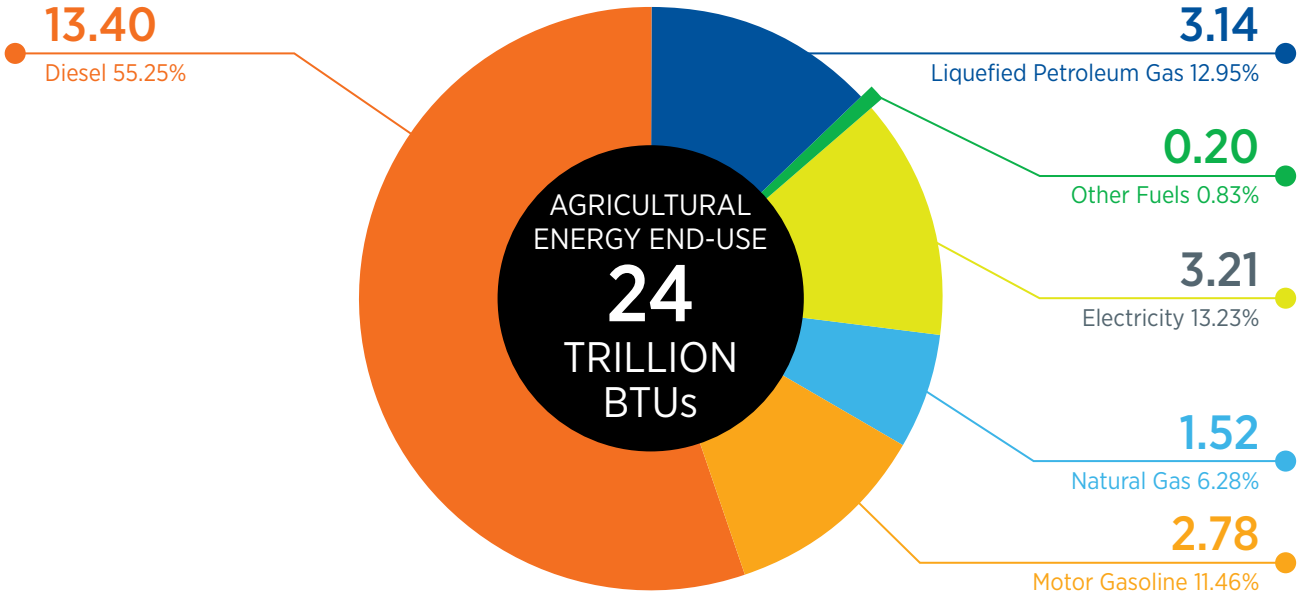
b Primarily distillate and kerosene, may include small amounts of coal and wood.

c Includes energy resources (and losses) attributed to electricity generation.

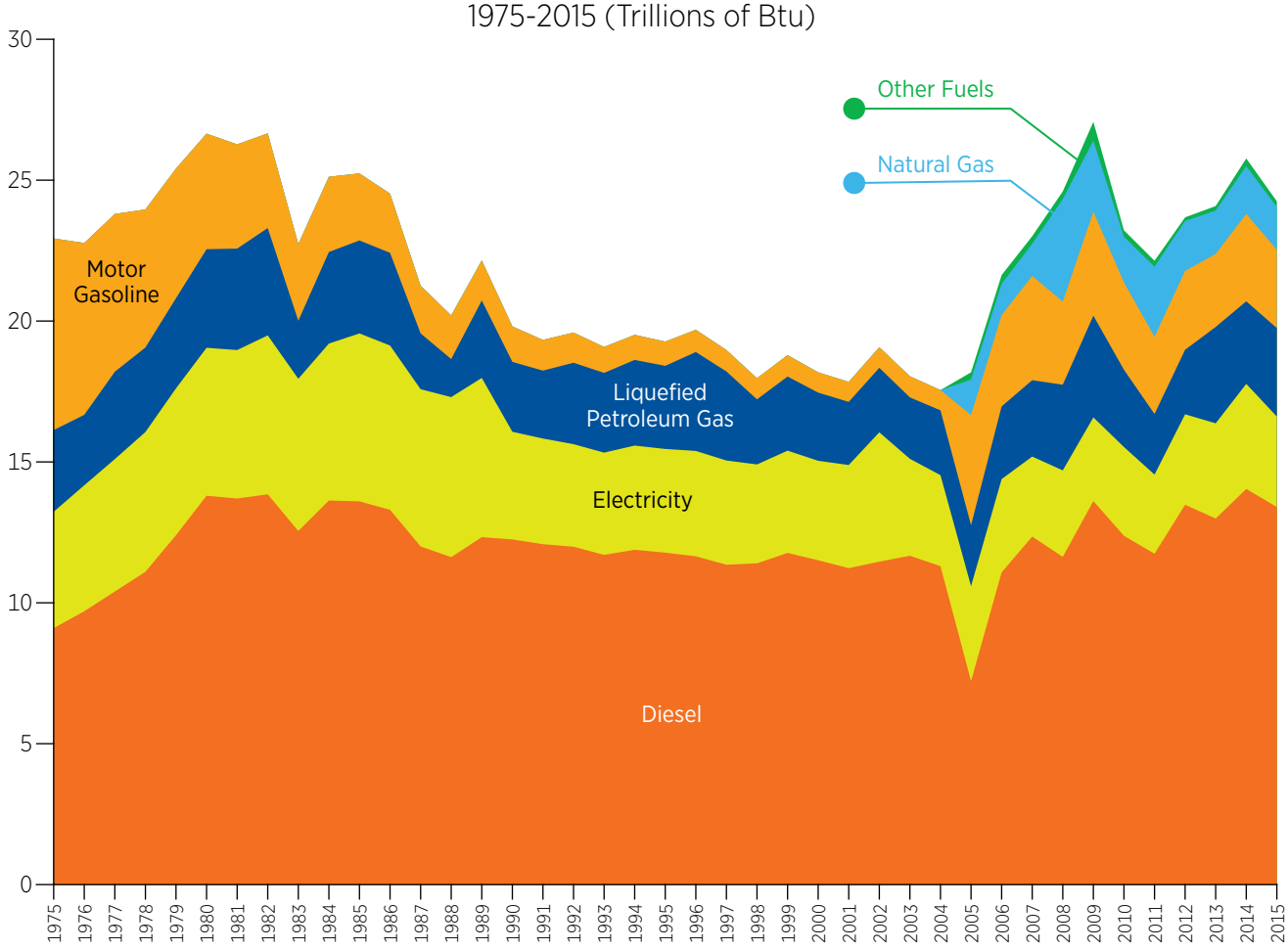
d 2008 consumption reflective of high natural gas price in that year, nurseries and greenhouses also included.

Source: U.S. Department of Agriculture, National Agriculture Statistics Service, (2003-2012) Unpublished, Value added by US agriculture (includes net farm income) (2013-2015) http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/value-added-years-by-state.aspx.

Wisconsin Agricultural Energy Use by Type of Fuel
2015 (Trillions of Btu and Percent of Total)



Wisconsin Agricultural Energy Use by Type of Fuel
1975-2015 (Trillions of Btu)



Commercial Energy Use

The Commercial Sector consists of non-industrial, business consumers of energy – for example service-sector businesses – though some manufacturers with low energy demands may be classified as commercial. Federal, State, and local governments; financial institutions; municipal libraries; wastewater treatment facilities; and churches are examples of Commercial customers. The Commercial sector uses energy for space heating, water heating, air conditioning, lighting, refrigeration, and cooking. In addition to these basic needs for energy, the commercial sector also uses energy to power a wide variety of equipment including back-up power generators, computer and communication equipment, and pool filtration among many other energy needs.

While this sector is largely an energy consumer, some individual facilities within the sector have the ability to capture and use energy to produce electricity and/or generate useful thermal energy. Specifically, wastewater treatment plants can capture and use biogas created as a by-product of the wastewater treatment process. The captured biogas is then used to generate thermal energy (for space- or process-heating) and/or to power generators to produce electricity. A variety of fuel types power the Commercial sector; including petroleum, natural gas, coal, and electricity. In 2015, the commercial sector used 186 trillion Btu of energy.

In an effort to reduce fuel consumption and increase energy conservation for a segment of the commercial sector, the Wisconsin Office of Energy Innovation launched the Municipal Energy Efficiency Technical Assistance Program (MEETAP). The program was developed to help municipalities and schools realize the benefits available from working with Energy Service Companies (ESCOs) such as identifying and implementing energy conservation measures, replacing aging and inefficient mechanical and lighting systems, or performing deferred maintenance.

▲ The Starboard Building of the University of Wisconsin-Milwaukee School of Freshwater Sciences features the Great Lakes Genomics Center—the first DNA sequencing lab in the United States dedicated to water and environmental issues.

▲ A 2015 upgrade from metal hallide lights to LEDs in Waukesha South High School's Natatorium provides safeguards against moisture and water treatment chemicals while reducing safety issues for lifeguards. Photo credit: Glen Norder, Waukesha.

◀ In 2015, Waukesha West High School upgraded its football stadium lighting to LEDs, directing safer and cleaner light to the field while reducing night sky pollution. Photo credit: Glen Norder, Waukesha.

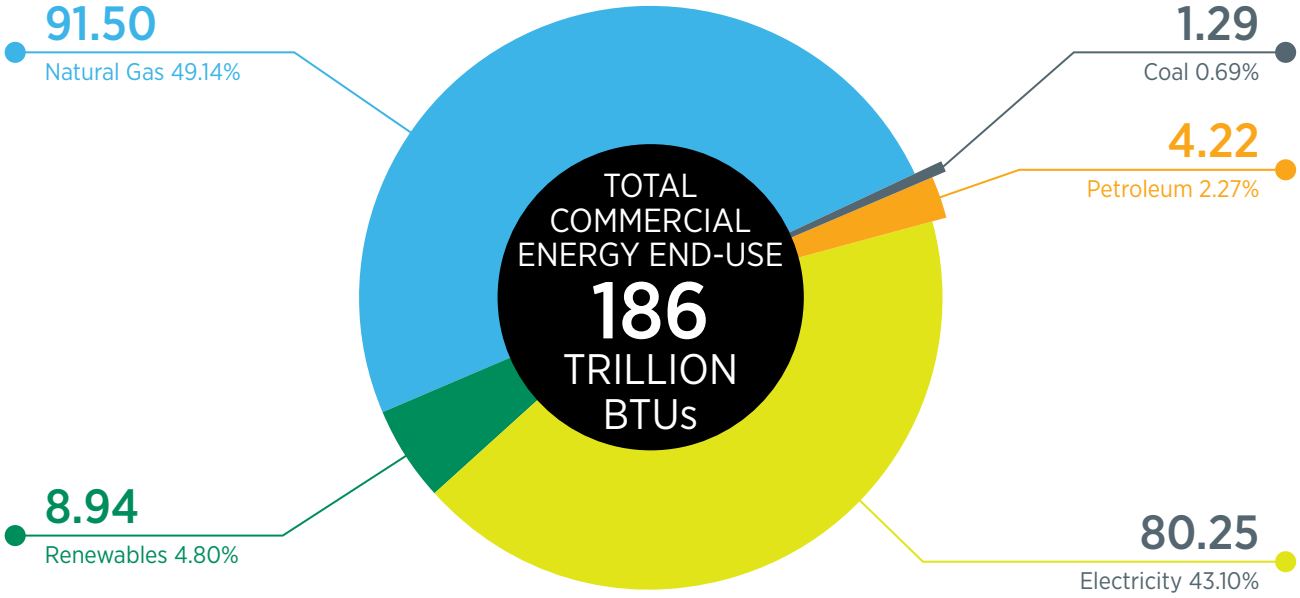
Wisconsin Commercial Energy Use by Type of Fuel

1975-2015 (Trillions of Btu)

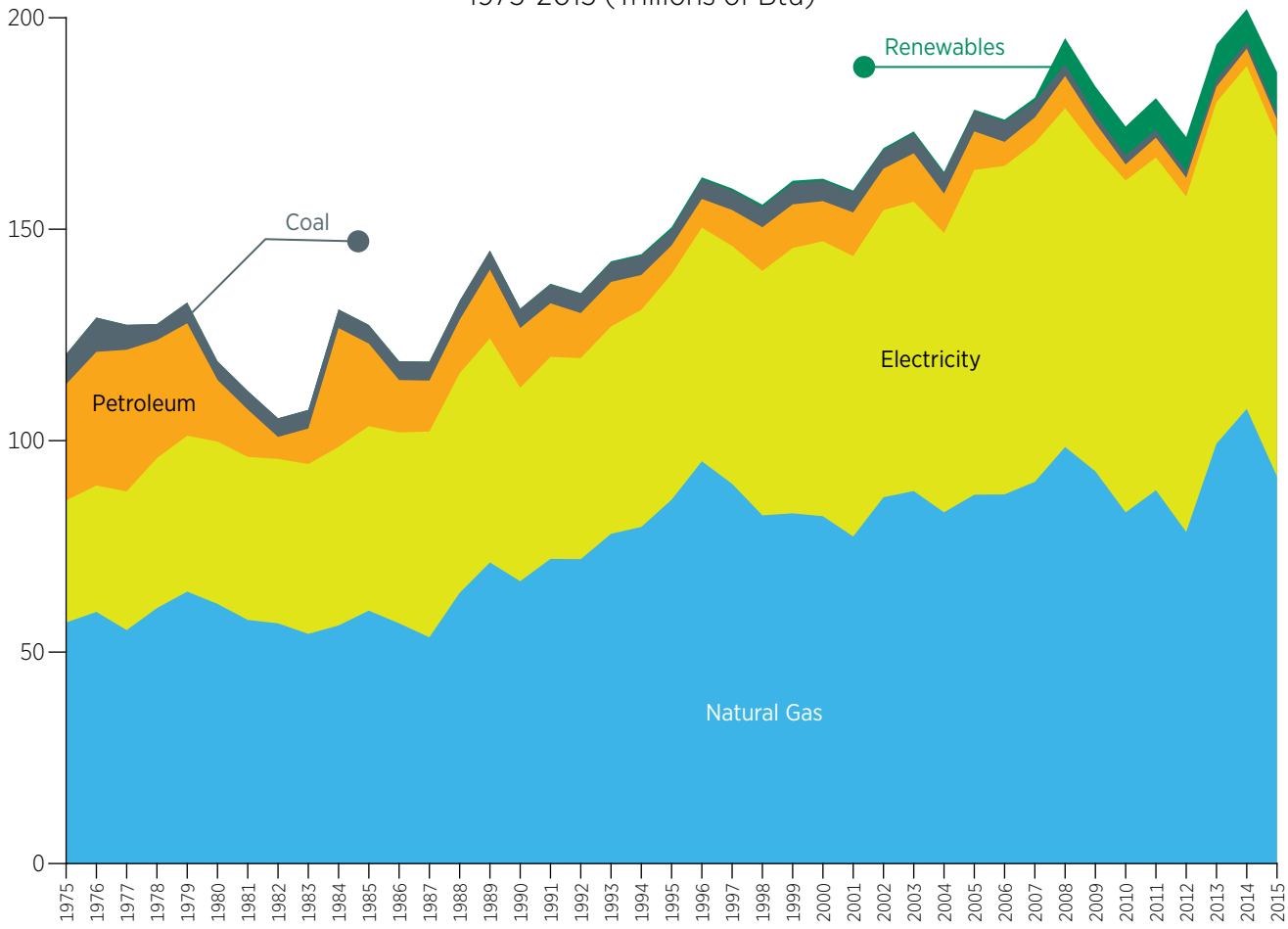
Year	Coal	Electricity[a,b]	Natural Gas	Petroleum	Renewables[r,p]	Total End-Use	Total Resource Use
1975	7.10	28.85	57.00	27.50		120.45	181.84
1976	8.10	29.90	59.50	31.60		129.10	192.96
1977	5.90	32.79	55.20	33.50		127.39	195.48
1978	3.80	35.47	60.40	27.90		127.57	204.45
1979	4.90	36.86	64.30	26.60		132.66	211.25
1980	4.40	38.37	61.40	14.60		118.77	198.28
1981	4.40	38.55	57.60	11.20		111.75	193.20
1982	4.40	38.88	56.80	5.20		105.29	186.09
1983	4.40	40.16	54.30	8.41		107.27	191.05
1984	4.40	42.23	56.30	28.10		131.02	218.67
1985	4.42	43.63	59.80	19.51		127.36	219.82
1986	4.45	45.14	56.80	12.38		118.77	215.96
1987	4.47	48.66	53.50	12.05		118.68	224.79
1988	4.49	51.93	64.00	12.64		133.06	245.78
1989	4.51	52.98	71.20	16.25	0.0184	144.95	259.73
1990	4.53	45.76	66.75	14.12	0.0552	131.22	241.80
1991	4.55	47.77	72.04	12.67	0.0736	137.10	238.65
1992	4.57	47.54	71.98	10.64	0.17	134.90	235.27
1993	4.59	49.05	77.96	10.53	0.28	142.41	247.78
1994	4.61	51.32	79.59	8.25	0.30	144.07	254.73
1995	3.75	53.39	86.02	6.74	0.55	150.46	278.54
1996	4.61	55.25	95.12	6.79	0.50	162.28	284.87
1997	4.61	56.25	89.79	8.50	0.48	159.62	284.45
1998	4.78	57.79	82.33	10.34	0.57	155.82	286.41
1999	4.97	62.73	82.82	10.32	0.62	161.46	305.25
2000	4.82	65.04	82.12	9.48	0.48	161.93	309.97
2001	4.80	66.31	77.33	10.32	0.38	159.16	313.68
2002	4.47	67.89	86.62	9.80	0.39	169.16	316.01
2003	4.74	68.45	88.08	11.43	0.43	173.13	322.01
2004	4.76	66.04	83.05	9.33	0.39	163.56	308.42
2005	4.78	76.80	87.21	9.12	0.36	178.26	343.78
2006	4.82	77.67	87.29	5.69	0.45	175.92	328.45
2007	3.88	80.17	90.26	5.99	0.79	181.09	350.06
2008	2.75	80.11	98.50	7.60	6.24	195.20	365.22
2009	1.97	76.71	92.74	5.64	6.68	183.74	344.10
2010	2.20	78.50	83.03	3.79	6.77	174.28	338.97
2011	1.82	78.69	88.26	4.69	7.53	180.98	337.82
2012	1.54	79.29	78.41	4.48	8.08	171.80	325.98
2013	1.79	80.75	99.30	3.65	8.19	193.67	354.74
2014	1.47	81.08	107.50	4.10	7.89	202.05	355.79
2015	1.29	80.25	91.50	4.22	8.94	186.21	340.04

a Includes energy resources (and losses) attributable to electricity generation.
b Revised in 2015, 1990-present does not include electricity used by the Agricultural sector.
r Historical revision beginning in 2008 due to revision in methodology and data sources.
p Preliminary data 2008-2015.
Source: American Gas Association, Gas Facts https://www.aga.org/gas-facts ; Personal communication, Wisconsin Investor-Owned Utilities (2008-2012); Public Service Commission of Wisconsin, Accounts and Finance Division, Statistics of Wisconsin Public Utilities Bulletin #8 (1970-1994), Annual Reports, Investor Owned Utilities (2005-2015) Unpublished data, Renewable Portfolio Summary Report (2012-2015) https://psc.wi.gov/Pages/Programs/RpsCompliance.aspx, Strategic Energy Assessment 2024 (2018) report not yet published; U.S. Energy Information Administration, Distillate Fuel Oil and Kerosene Sales by End-Use http://www.eia.gov/dnav/pet/pet_cons_821ker_dcu_SWI_a.htm (1983-2010), Retail Sales of Electricity by State by Sector by Provider (EIA-861) (2003-2015) https://www.eia.gov/electricity/data/state/, Electric Sales and Revenue (1989-1999), Electric Power Monthly (1989-2012), Natural Gas Annual (1970-2015) https://www.eia.gov/dnav/ng/ng_sum_lsum_dcu_SWI_a.htm; Wisconsin Department of Administration, Energy Use in State Facilities Report (1989-2015) Unpublished data; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1972-2015) Unpublished data.

Wisconsin Commercial Energy Use by Type of Fuel
2015 (Trillions of Btu and Percent of Total)



Wisconsin Commercial Energy Use by Type of Fuel
1975-2015 (Trillions of Btu)



Wisconsin Commercial Energy Prices, by Type of Fuel

1975-2015 (Dollars per Million Btu)

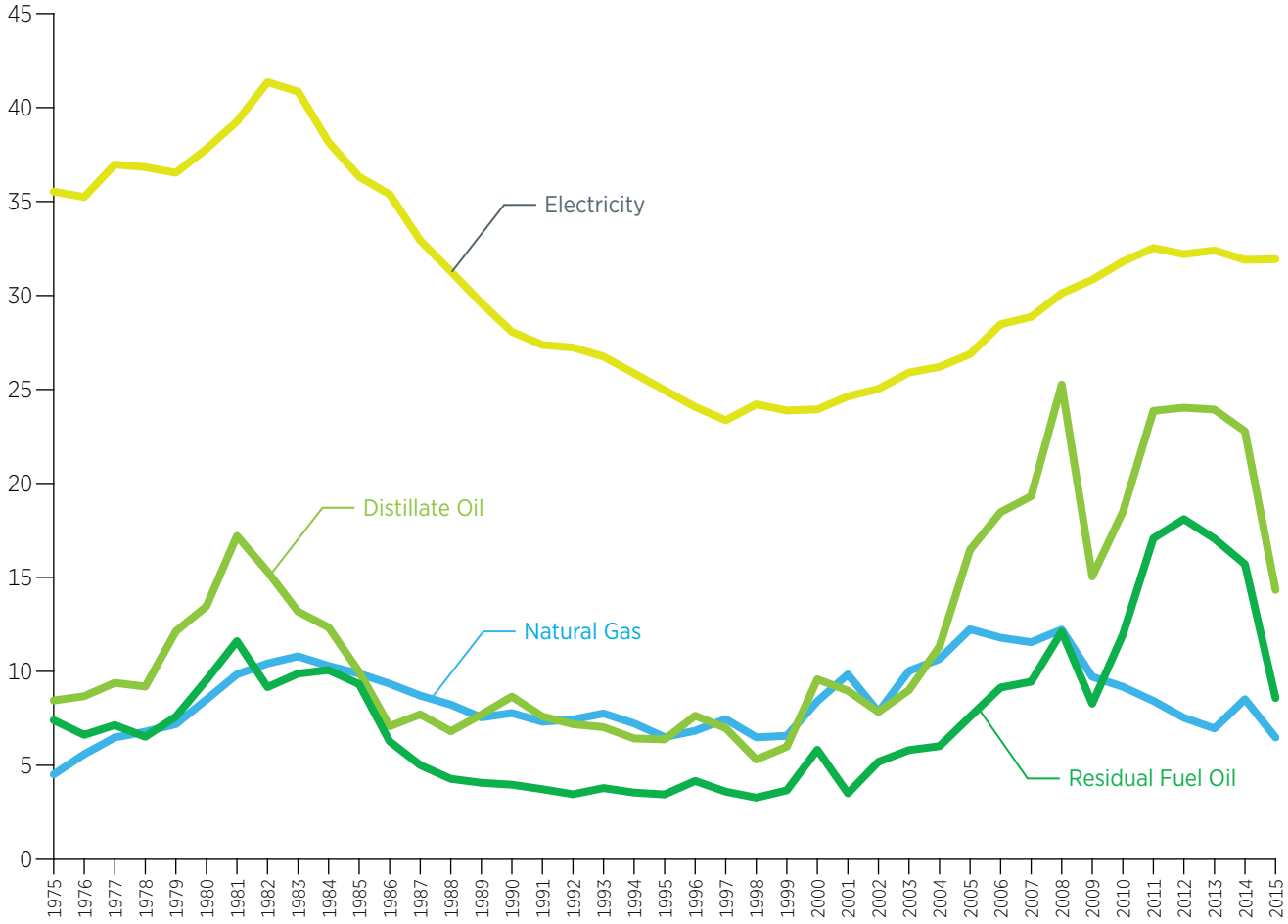
	Nominal Dollars				2015 Dollars			
Year	Distillate Oil[a]	Residual Fuel Oil[b]	Natural Gas	Electricity	Distillate Oil[a]	Residual Fuel Oil[b]	Natural Gas	Electricity
1975	2.41	2.11	1.29	10.13	8.45	7.40	4.52	35.53
1976	2.61	1.99	1.68	10.60	8.68	6.62	5.59	35.24
1977	3.00	2.28	2.07	11.81	9.39	7.14	6.48	36.97
1978	3.14	2.23	2.32	12.59	9.19	6.52	6.79	36.83
1979	4.49	2.81	2.66	13.52	12.13	7.59	7.19	36.53
1980	5.43	3.85	3.43	15.25	13.46	9.54	8.50	37.80
1981	7.59	5.12	4.34	17.32	17.21	11.61	9.84	39.26
1982	7.17	4.29	4.88	19.37	15.31	9.16	10.42	41.35
1983	6.42	4.81	5.26	19.89	13.18	9.88	10.80	40.85
1984	6.22	5.08	5.19	19.24	12.34	10.07	10.29	38.16
1985	5.19	4.85	5.14	18.90	9.97	9.32	9.88	36.32
1986	3.76	3.33	4.96	18.78	7.08	6.27	9.34	35.38
1987	4.20	2.73	4.74	17.93	7.71	5.01	8.71	32.93
1988	3.84	2.41	4.64	17.63	6.81	4.28	8.23	31.29
1989	4.51	2.38	4.42	17.33	7.70	4.07	7.55	29.60
1990	5.26	2.41	4.72	17.04	8.66	3.97	7.78	28.07
1991	4.77	2.34	4.59	17.17	7.60	3.73	7.32	27.37
1992	4.61	2.22	4.77	17.47	7.19	3.46	7.44	27.23
1993	4.62	2.49	5.10	17.57	7.03	3.79	7.76	26.75
1994	4.31	2.38	4.85	17.35	6.43	3.55	7.23	25.86
1995	4.37	2.36	4.45	17.09	6.38	3.45	6.50	24.96
1996	5.33	2.91	4.77	16.78	7.64	4.17	6.84	24.07
1997	4.95	2.55	5.29	16.57	6.98	3.60	7.46	23.36
1998	3.81	2.35	4.65	17.36	5.31	3.28	6.49	24.21
1999	4.36	2.67	4.78	17.38	5.99	3.67	6.57	23.88
2000	7.13	4.34	6.26	17.82	9.58	5.83	8.41	23.94
2001	6.83	2.67	7.49	18.75	8.97	3.51	9.84	24.63
2002	6.06	4.01	6.06	19.35	7.84	5.19	7.84	25.03
2003	7.10	4.58	7.90	20.42	9.00	5.81	10.02	25.90
2004	9.18	4.88	8.64	21.23	11.33	6.02	10.66	26.20
2005	13.77	6.35	10.24	22.48	16.47	7.59	12.24	26.88
2006	15.92	7.88	10.16	24.54	18.47	9.14	11.79	28.47
2007	17.10	8.36	10.22	25.54	19.32	9.45	11.55	28.86
2008	22.79	10.93	11.03	27.18	25.26	12.11	12.22	30.12
2009	13.68	7.53	8.83	28.04	15.05	8.28	9.71	30.84
2010	17.01	11.00	8.45	29.26	18.48	11.95	9.18	31.80
2011	22.41	16.04	7.92	30.55	23.86	17.08	8.43	32.53
2012	22.99	17.32	7.20	30.80	24.03	18.10	7.53	32.20
2013	23.26	16.58	6.76	31.49	23.93	17.06	6.96	32.40
2014	22.53	15.53	8.43	31.56	22.77	15.70	8.52	31.90
2015	14.33	8.58	6.48	31.93	14.33	8.58	6.48	31.93

a Beginning in 2011, refiner retail price in Wisconsin used for distillate oil price; reports previously used were suspended as part of U.S. budget sequester.

b Residual fuel oil price not available for Wisconsin beginning in 2009 due to publishing policies of the U.S. Energy Information Administration.

Source: U.S. Energy Information Administration, State Energy Data System Prices and Expenditures (1970-2015) http://www.eia.gov/state/seds/seds-data-complete.cfm#PricesExpenditures, Midwest (PADD 2) Residual Fuel Oil Retail Sales by All Sellers (Dollars per Gallon) (2009-2010) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPPR_PTA_R20_DPG&f=A, Wisconsin No 2 Distillate Retail Sales by Refiners (2011 – 2015) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPD2_PTG_SWI_DPG&f=A, U.S. Residual Fuel Oil Retail Sales by Refiners (2011 – 2015) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPPR_PTG_NUS_DPG&f=A, State Btu Unit Price Data Base (May 1981) unpublished, Petroleum Marketing Monthly (January 1985 – March 2008), analysis of Wisconsin residual oil prices (1985-2006) unpublished, Petroleum Marketing Annual (2007-2009) [DOE/EIA-0487 (2009)] (August 2010); Oil Daily/Daily Oil and Gas Price Review (2008-2009).

Wisconsin Commercial Energy Prices, by Type of Fuel
1975-2015 (2015 Dollars per Million Btu)



Electric Power Generation

Electric power generation produces the end-use energy that powers Wisconsin – from homes to schools to libraries and museums to restaurants. Electricity is generated at power plants (also called generating facilities) through the combustion of a variety of fuels including: coal, biomass, natural gas, nuclear, and renewables.

Electric power generation increased from 61,547 Million kWh in 2014 to 65,764 million kWh in 2015. 2015 represents the highest total electric power generation in the state on record. Despite declines in coal usage since 2013, coal still represents more than 55 percent of the electric power generation in Wisconsin.

Over the years, natural gas consumption has fluctuated as a heavily used fuel for electricity generation. In 2015, natural gas was the second-largest source of electric power generation, overtaking nuclear for the second time, the first occurring in 2012. Nuclear power generation, by contrast, has remained relatively constant, decreasing from 11,224 million kWh in 1990 to 10,008 million kWh in 2015, though in 2013 the Kewaunee Power Station (a nuclear power plant owned by Dominion Energy) was closed due to competition with natural gas.

Generating electricity is not without its drawbacks – combustion of coal releases Nitrogen Oxides (NOX), a group of pollutants harmful to human health and the environment. In 1989, 111,481 tons of NOX were emitted; in 2015, 18,994 tons were emitted, representing an 83 percent decrease in emissions over 25 years. Since 1989, utility sources of NOX have steadily declined, despite a general trend of increase in electric power generation.

▲ Inside the Alliant Energy-owned Prairie du Sac Hydroelectric power plant.

▲ A Merlin falcon perches on a power line in Door County.

◀ Bucket trucks and utility arborists prepare to remove branches from the path of power lines.

Eastern Wisconsin Non-Coincident Peak Demand and Electric Utility Power Load

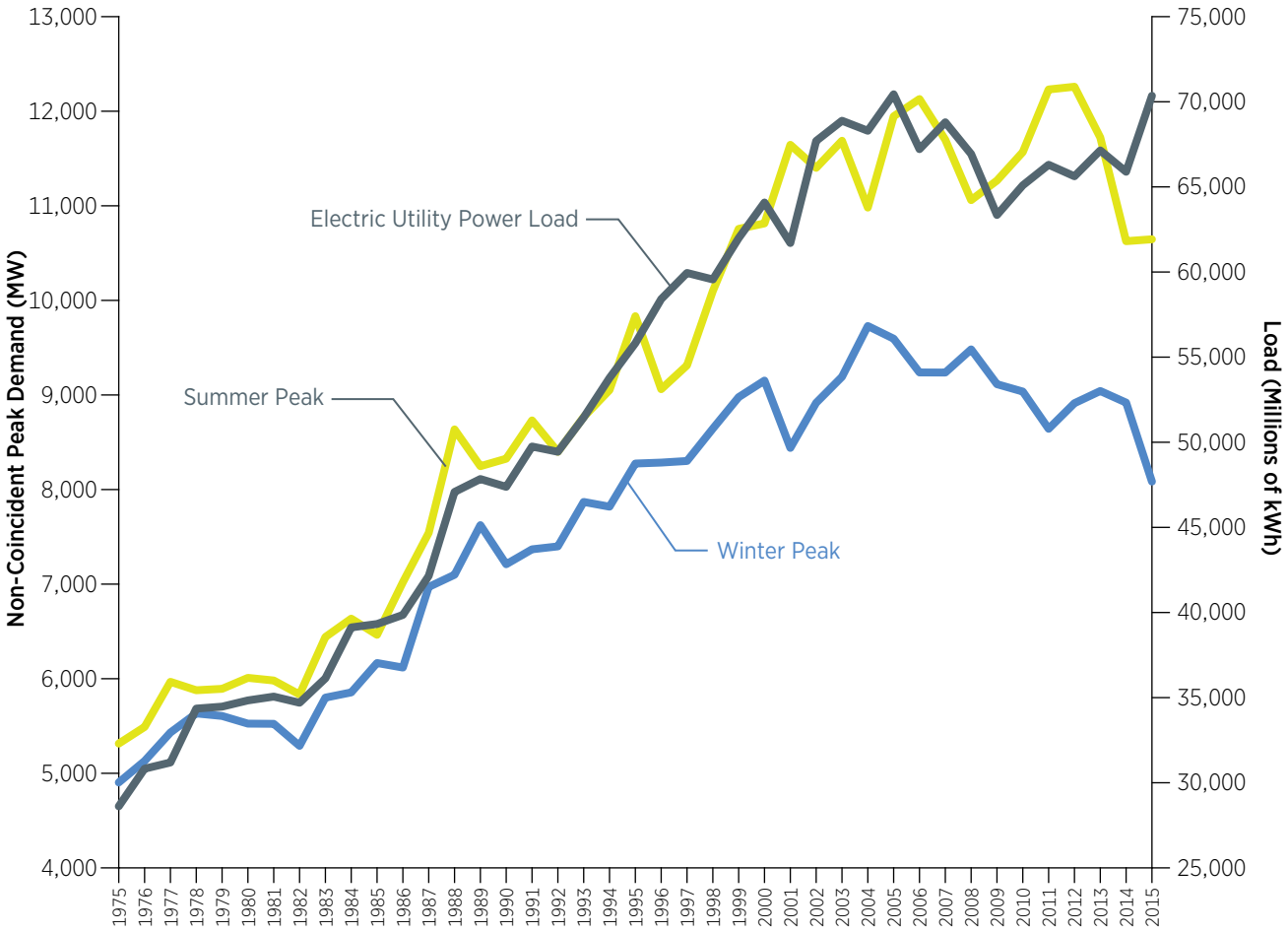
1975-2015 (MW and Millions of kWh)

	Peak Demand (MW)		
Year	Summer	Winter	Load (Millions of kWh)
1975	5,314	4,903	28,616
1976	5,490	5,130	30,825
1977	5,967	5,431	31,190
1978	5,878	5,633	34,355
1979	5,893	5,606	34,471
1980	6,009	5,525	34,836
1981	5,981	5,523	35,060
1982	5,833	5,290	34,700
1983	6,441	5,800	36,132
1984	6,635	5,855	39,123
1985	6,464	6,166	39,325
1986	7,020	6,118	39,858
1987	7,542	6,970	42,150
1988	8,636	7,099	47,082
1989	8,247	7,624	47,840
1990	8,326	7,210	47,381
1991	8,731	7,368	49,749
1992	8,399	7,399	49,441
1993	8,767	7,869	51,459
1994	9,052	7,819	53,777
1995	9,833	8,275	55,821
1996	9,061	8,285	58,408
1997	9,313	8,302	59,946
1998	10,099	8,644	59,563
1999	10,756	8,977	61,990
2000	10,814	9,152	64,084
2001	11,645	8,440	61,701
2002	11,401	8,917	67,698
2003	11,688	9,192	68,886
2004	10,981	9,729	68,296
2005	11,946	9,595	70,441
2006	12,129	9,238	67,216
2007	11,698	9,237	68,796
2008	11,060	9,482	66,931
2009	11,267	9,114	63,349
2010	11,568	9,036	65,092
2011	12,230	8,642	66,300
2012	12,259	8,913	65,623
2013	11,722	9,042	67,142
2014	10,626	8,919	65,887
2015	10,646	8,084	70,352

Note: Eastern Wisconsin utilities include: Wisconsin Electric Power Co., Wisconsin Power and Light Co., Wisconsin Public Service Corp., Madison Gas & Electric Co.

Source: Public Service Commission of Wisconsin, Annual Reports, Investor Owned Utilities: Investor Owned Utilities (1970-2015) http://apps.psc.wi.gov/vs2015/annualReports/content/listingIOU.aspx.

Eastern Wisconsin Non-Coincident Peak Demand and Electric Utility Power Load
1975-2015 (MW and Millions of kWh)



Eastern Wisconsin Non-Coincident Peak Demand and Electric Utility Power Load, by Month

2013-2015 (MW and Millions of kWh)

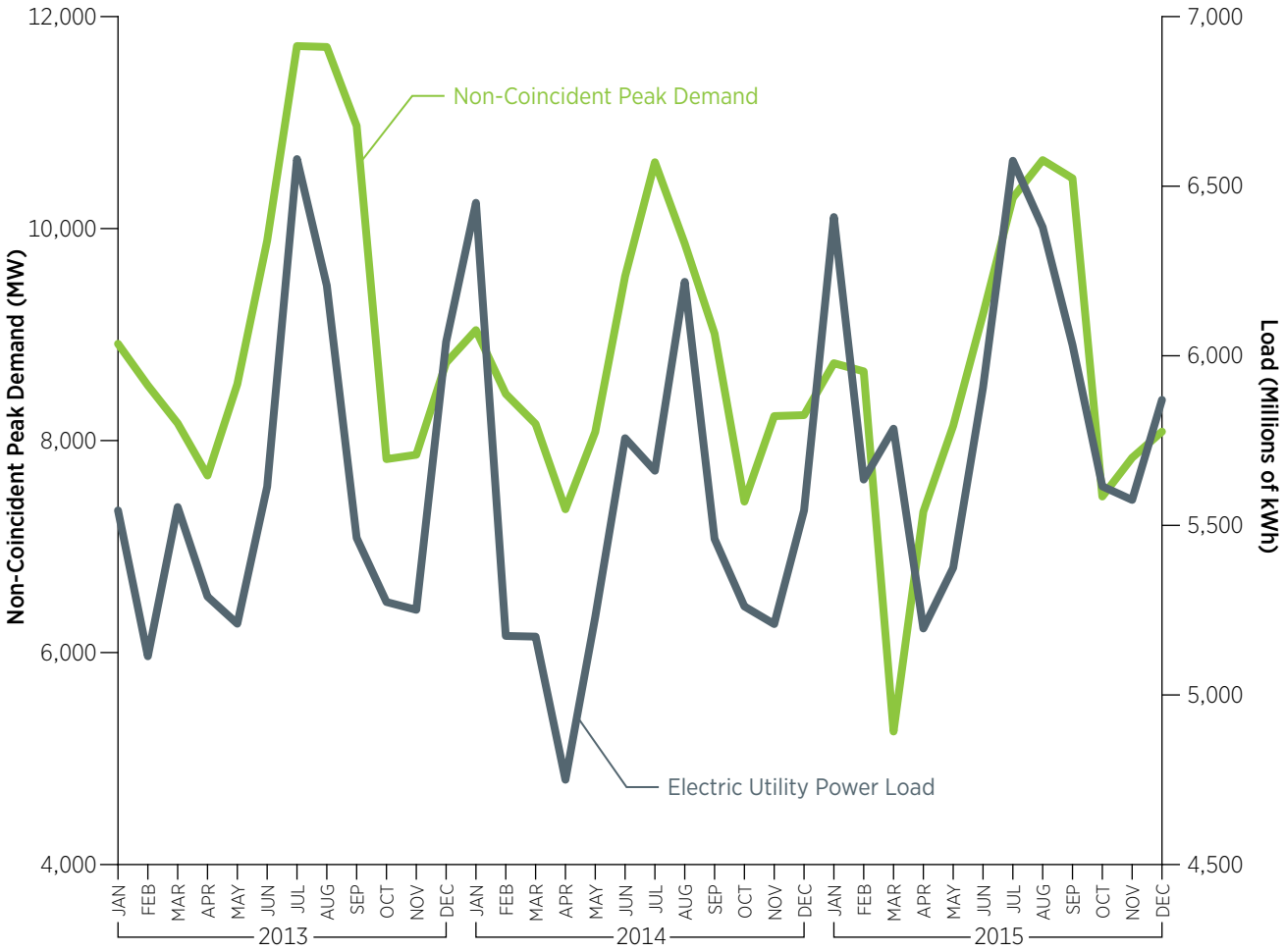
Year / Month	Non-Coincident Peak Demand (MW)[b]	Load (Millions of kWh)[a]
2013		
January	8,913	5,544
February	8,520	5,114
March	8,163	5,554
April	7,670	5,290
May	8,533	5,210
June	9,885	5,614
July	11,722	6,580
August	11,713	6,207
September	10,969	5,463
October	7,825	5,274
November	7,866	5,251
December	8,734	6,041
2013 Load Total		**67,142**
2014		
January	9,042	6,451
February	8,440	5,174
March	8,157	5,172
April	7,352	4,750
May	8,081	5,230
June	9,549	5,757
July	10,626	5,661
August	9,858	6,218
September	9,009	5,460
October	7,424	5,261
November	8,231	5,209
December	8,240	5,544
2014 Load Total		**65,887**
2015		
January	8,730	6,409
February	8,653	5,635
March	5,255	5,785
April	7,329	5,196
May	8,139	5,375
June	9,191	5,906
July	10,290	6,575
August	10,646	6,379
September	10,474	6,032
October	7,472	5,615
November	7,838	5,575
December	8,084	5,870
2015 Load Total		**70,352**

a Wisconsin Electric Power Co., Wisconsin Power and Light Co., Wisconsin Public Service Corp., Madison Gas & Electric Co.

b The sum of individual monthly peak electric demands for the given utility companies.

Source: Public Service Commission of Wisconsin, Annual Reports, Investor Owned Utilities: Investor Owned Utilities (1970-2015) http://apps.psc.wi.gov/vs2015/annualReports/content/listingIOU.aspx.

Eastern Wisconsin Non-Coincident Peak Demand and Electric Utility Power Load, by Month
2013-2015 (MW and Millions of kWh)



Wisconsin Electric Power Generation, All Producers, by Type of Fuel

1975-2015 (Millions of kWh)

Year	Coal[a]	Nuclear	Hydro	Petroleum[b]	Natural Gas	Renewables[c]	Purchased Steam	Total Generation	Imports & Losses[d]	Total Sales
1975	20,615	10,292	1,483	691				33,081	-1,805	31,276
1976	22,367	10,722	1,213	619				34,921	-1,979	32,942
1977	23,131	10,945	1,400	507				35,983	-1,438	34,545
1978	22,317	11,718	1,817	772				36,624	-280	36,344
1979	24,796	10,403	1,790	785				37,774	-369	37,405
1980	26,383	9,912	1,628	393				38,316	-571	37,745
1981	25,235	10,344	1,675	197				37,451	644	38,095
1982	24,887	10,269	1,932	47				37,135	814	37,949
1983	27,625	9,301	2,038	73				39,037	398	39,435
1984	28,981	10,743	1,847	28				41,599	-648	40,951
1985	28,840	10,978	2,046	20				41,884	-159	41,725
1986	29,406	11,197	1,928	51				42,582	137	42,719
1987	31,319	11,308	1,177	46				43,850	994	44,844
1988	32,192	11,464	1,104	109				44,869	2,848	47,717
1989	32,122	10,832	1,191	62				44,207	4,169	48,376
1990	27,956	11,224	1,791	76	393			41,440	7,758	49,198
1991	33,489	10,991	2,270		398			47,148	3,885	51,032
1992	32,741	11,207	2,123		393			46,464	4,461	50,925
1993	33,558	11,465	2,191		549			47,763	5,393	53,156
1994	35,283	11,516	1,914		724			49,437	5,974	55,412
1995	32,994	10,970	2,097	97	924			47,082	10,885	57,967
1996	38,145	10,121	2,402		983			51,651	7,093	58,744
1997	40,820	3,916	2,182		1,642			48,560	11,534	60,094
1998	39,786	9,397	1,518		1,828			52,529	9,532	62,061
1999	39,899	11,495	1,734		1,576			54,704	8,843	63,547
2000	41,736	11,459	1,749	52	965	43		56,004	9,142	65,146
2001	40,855	11,507	1,890	99	815	51		55,217	10,002	65,218
2002	42,368	12,449	2,283	43	910	62		58,115	8,884	66,999
2003	44,140	12,220	1,623	93	1,412	62		59,550	7,691	67,241
2004	45,149	11,888	1,748	56	574	69		59,484	8,491	67,976
2005	45,219	7,574	1,551	75	4,406	413		59,238	11,097	70,336
2006	44,298	12,234	1,718	263	5,112	1,184		64,809	5,012	69,821
2007	41,111	12,910	1,534	161	6,479	1,287		63,483	7,819	71,301
2008	42,887	12,155	1,684	100	5,219	1,682		63,727	6,395	70,122
2009	37,824	12,683	1,562	44	5,452	2,658	30	60,253	6,034	66,286
2010	40,646	13,281	2,339	45	5,474	2,631	33	64,449	4,304	68,752
2011	39,763	11,560	2,259	45	6,211	2,949	19	62,806	5,806	68,612
2012	33,342	9,784	1,608	9	11,290	3,337	32	59,402	9,419	68,820
2013	41,117	9,942	2,069	6	7,451	3,329	33	63,947	5,177	69,124
2014	37,869	9,447	2,557	63	8,137	3,442	32	61,547	7,948	69,495
2015	36,681	10,008	2,431	33	13,378	3,201	32	65,764	2,935	68,699

a May include small amounts of refuse derived fuel (RDF).

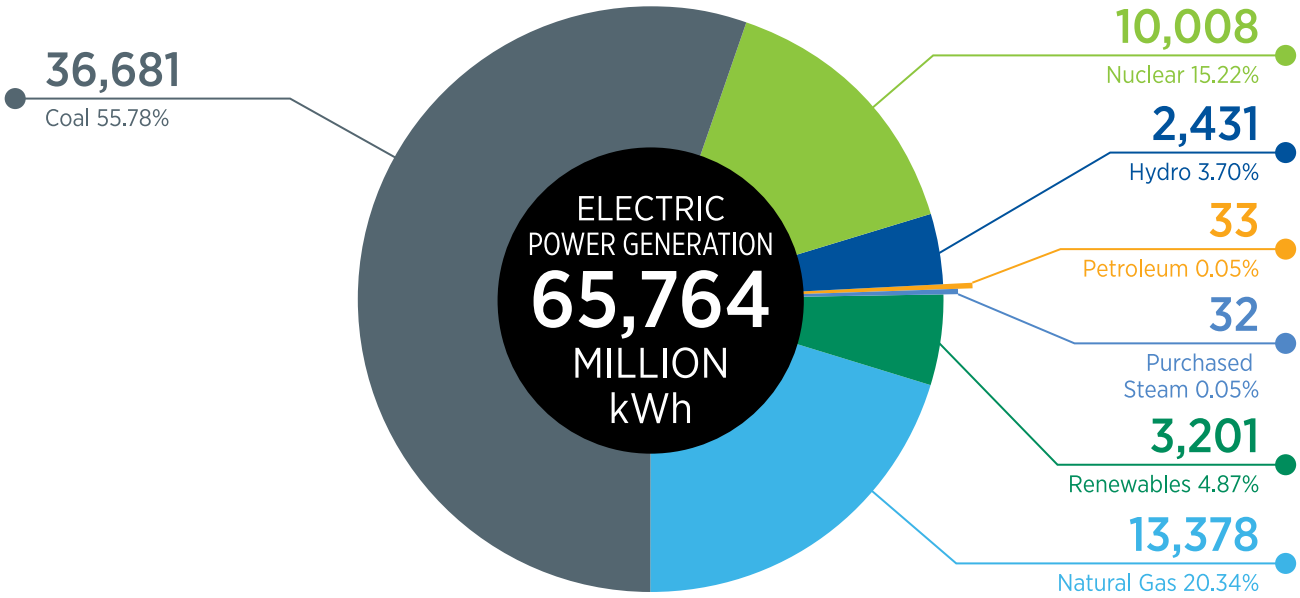
b Includes propane used for electricity production. Petroleum split from natural gas as a generation resource starting in 1990, combined prior to 1990.

c Includes biomass, methane from landfills and digesters, solar, and wind.

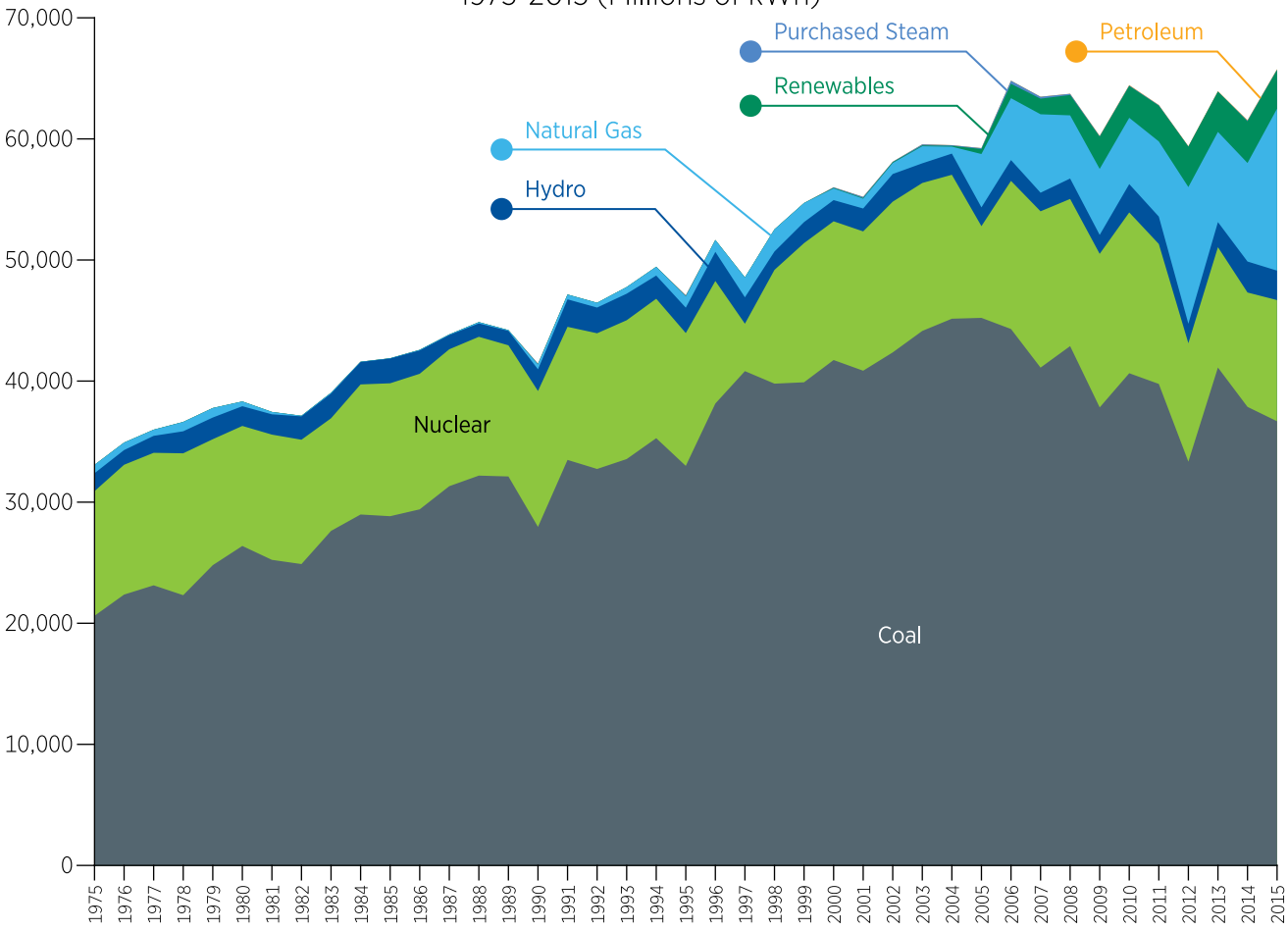
d Imports and losses reflect the difference between total sales reported by the U.S. Energy Information Administration and total generation in Wisconsin. Negative values may indicate out-of-state exports and/or line losses.

Source: Public Service Commission of Wisconsin, Accounts and Finance Division, Generating Plants Operated by Wisconsin Electric Utilities Bulletin #46 (1970-1994), Annual Reports, Investor Owned Utilities, (2007-2015) Unpublished data; U.S. Department of Agriculture, Rural Electrification Administration, Annual Statistical Report REA Bulletin 1-1 (1971-1994) http://www.rd.usda.gov/publications/regulations-guidelines/bulletins/electric; U.S. Energy Information Administration Electric Power Monthly (1970 – 2006, 2012) http://www.eia.gov/electricity/monthly/index.cfm.

Wisconsin Electric Power Generation, All Producers, by Type of Fuel
2015 (Millions of kWh and Percent of Total)



Wisconsin Electric Power Generation, All Producers, by Type of Fuel
1975-2015 (Millions of kWh)



Wisconsin Power Plant Inventory

Utility/Site[a]	Nameplate Capacity (MW)	Number of Units	Primary Fuel[b]
Dairyland Power Cooperative[c]			
Elk Mound	71.0	2	Natural Gas
Flambeau	0.8	3	Hydro
Genoa 3	345.6	1	Coal
J.P. Madgett	387.0	1	Coal
Seven Mile Creek	4.1	4	Biomass LFG
Stiles	1	2	Hydro
Washington Island	5	7	Fuel Oil
Various Biogas Methane	0.8	2	Biogas
Madison Gas and Electric Co.			
Blount Street 6,7	100.0	2	Natural Gas
Fitchburg 1,2	57.6	2	Natural Gas
Nine Springs	16.2	1	Natural Gas
Rosiere	11.2	17	Wind
Sycamore	41.6	2	Natural Gas
West Campus	169.3	3	Natural Gas
W. Marinette 34	83.0	1	Natural Gas
Various Solar	0.10	Multiple	Solar
Various Portables	54.00	Multiple	Fuel Oil
Northern States Power Co.			
Bay Front 4,5,6	67.2	3	Biomass Wood
Flambeau	16.0	1	Natural Gas
French Island 1,2	46.4	2	Biomass Wood
French Island 3,4	157.6	2	Fuel Oil
Various Hydro	240.9	58	Hydro
Wheaton 1-4	216.0	4	Natural Gas
Wheaton 5-6	106.2	2	Fuel Oil
Wisconsin Electric Power Co.			
Blue Sky Green Field	145.2	88	Wind
Byron	1.32	2	Wind
Concord	381.2	4	Natural Gas
Germantown 1,2,3,4	244.8	4	Fuel Oil
Germantown 5	106.9	1	Natural Gas
Glacier Hills	162	90	Wind
Milwaukee	11.0	1	Coal
Montfort	30	20	Wind
Paris	381.2	4	Natural Gas
Pleasant Prairie 1,2	1,233.0	2	Coal
Pleasant Prairie 3	2.0	1	Fuel Oil
Port Washington 1-3	1,182.0	6	Natural Gas
Domtar Rothschild	50.0	1	Biomass Wood
S. Oak Creek 5-8	1,191.6	4	Coal
Valley 1,2	272.0	2	Coal
Valley 3	2.7	1	Fuel Oil
Various Hydro	13.6	8	Hydro
Various Solar	0.003	3	Solar
Wisconsin Public Service Corp.			
Lincoln	9.24	14	Wind
Pulliam 31	91	1	Natural Gas
Pulliam 7,8[d]	231.2	2	Coal
Various Hydro	92.2	47	Hydro
Weston 2,3[e]	432.1	2	Coal
Weston 31,32	76.3	2	Natural Gas
W. Marinette 31,32	83.6	3	Natural Gas
W. Marinette 33	83.5	1	Natural Gas
Various Solar	0.0495	8	Solar
DePere	187.2	1	Natural Gas
Fox Energy Center	620	3	Natural Gas
Wisconsin Power and Light Co.			
Cedar Ridge	67.65	41	Wind
Edgewater 5[f]	380.0	1	Coal
Neenah	371.0	2	Natural Gas
Nelson Dewey 1,2	200.0	2	Coal
Riverside	695.7	3	Natural Gas
Rock River 3-6	144.0	4	Natural Gas
Sheboygan Energy Center	380	2	Natural Gas
Sheepskin	40.0	1	Natural Gas
South Fond Du Lac	172.0	2	Natural Gas
Various Landfill Gas	2.3	13	Biomass LFG
Various Hydro	36.6	12	Hydro
Various Solar	0.01	5	Solar
Various Biogas Methane	0.3	10	Biogas
Shared Ownership[g]			
Columbia 1	512.0	1	Coal
Columbia 2	511.0	1	Coal
Edgewater 4	330.0	1	Coal
Weston 4	595	1	Coal
Elm Road C1	1402.55	2	Coal
Forward Wind	129.0	86	Wind
Municipal Utilities			
Manitowoc, City of	5.5	1	Natural Gas
	117.4	3	Coal/RDF/Coke
Menasha, City of	28.0	3	Coal
Merchant/IPP			
Point Beach	1,098.6	2	Nuclear
Calpine	561	3	Natural Gas
Statewide Utilities[h]			
	8179.45	33	Coal
	6332.80	62	Natural Gas
	385.05	130	Hydro
	171.19	62	Biomass, Biogas, Solar – Renewables
	572.30	17	Petroleum
	555.63	358	Wind
	1098.6	2	Nuclear
Statewide Totals[h]	**17,295.0**	**664**	**All**

a List is not exhaustive. Does not include out-of-state sites or non-utility generation.

b Differences in hydroelectric capacity from other tables due to different sources.

c Alma units retired January 2015.

d Pulliam units 5,6 retired June 2015.

e Weston unit 1 retired June 2015.

f Edgewater unit 3 retired 2015.

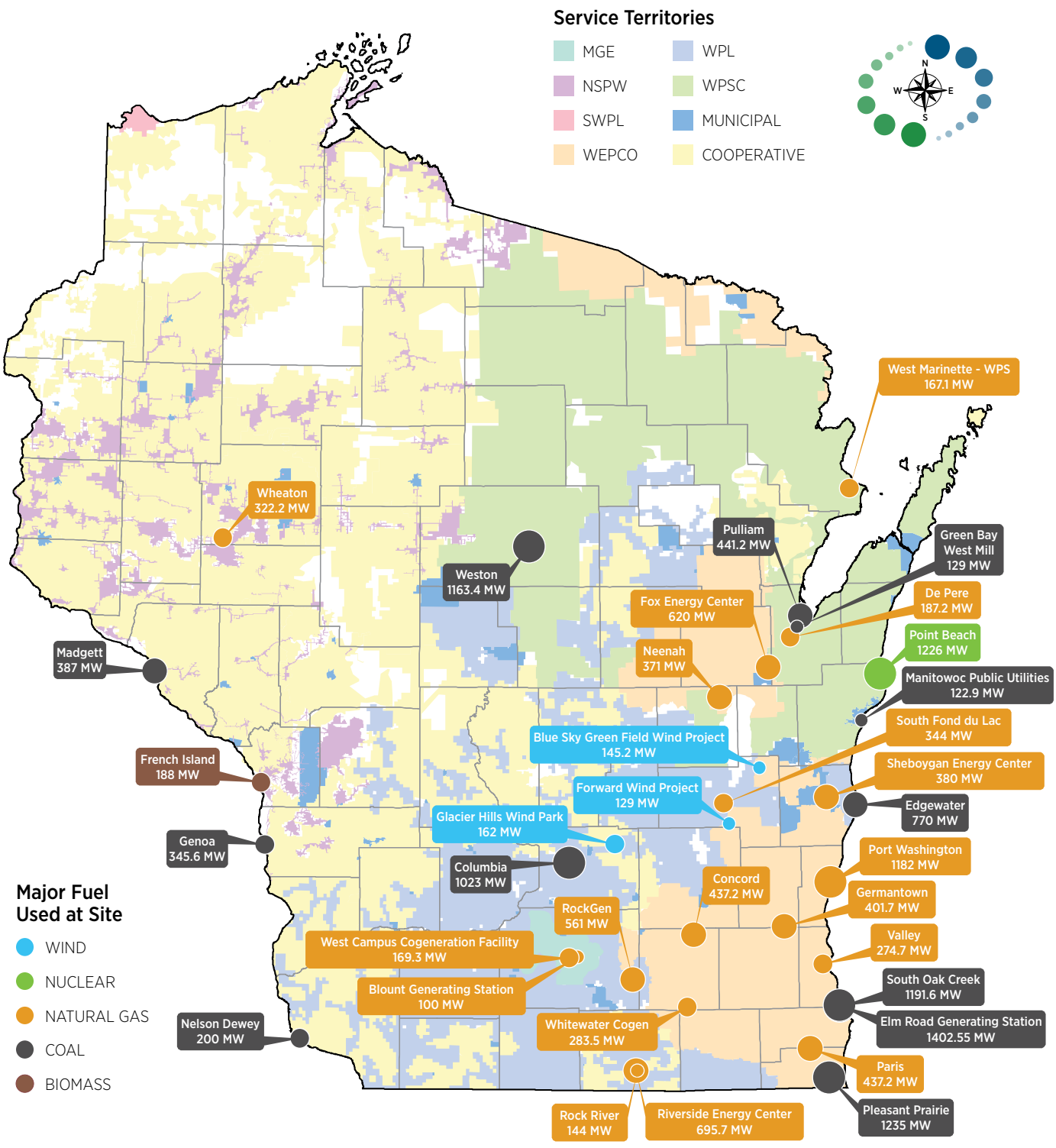
g Shared ownership: Columbia units 1 and 2 – Alliant Energy (50.2%), Wisconsin Public Service Corp. (29.4%), Madison Gas & Electric Co. (20.4%); Weston unit 4 – Wisconsin Public Service Corp. (70%), Dairyland Power Cooperative (30%); Edgewater unit 4 – Alliant Energy (68.2%), Wisconsin Public Service Corp. (31.8%); Elm Road unit C1 – Wisconsin Electric Power Co. (83.34%), WPPI Energy (8.33%), Madison Gas & Electric (8.33%); Forward Wind – Wisconsin Public Service Corp. (44.57%), Alliant Energy (21.32%), Madison Gas & Electric Co. (12.79%).

h List is not exhaustive, statewide totals may vary from other pages.

Source: Public Service Commission of Wisconsin, Annual Reports (2015) unpublished data.

Wisconsin Electric Utility Service Territories and Generating Facilities over 100MW

2015



Source: Public Service Commission of Wisconsin; Wisconsin Department of Natural Resources.

Electric Utility Nitrogen Oxide Emissions and Emission Rates

1989-2015 (Tons)

Utility	1989	1990	1995	2000	2005	2007[r]	2009	2010	2011	2012	2013	2014	2015
Dairyland Power Cooperative													
Alma	1,934	1,962	1,229	2,774	3,834	4,883	1,100	763	367	171	133.89	126	0
J.P. Madgett	4,728	4,963	2,705	4,845	4,469	4,114	3,636	2,898	2,933	2,841	824.95	2031	2,072
Genoa	5,243	5,304	2,641	3,611	3,717	3,556	1,574	1,669	769	651	3723	854	777
Madison Gas and Electric Co.													
Blount Street	1,511	1,165	1,550	1,480	1,187	463	78	88	47	65	21.57	9	79
Northern States Power Co.													
Bay Front	0	0	0	1,288	1,527	1,590	916	665	535	255	332.9	312	318
Wisconsin Electric Power Co.													
Oak Creek	13,967	8,917	11,360	19,786	4,650	4,646	5,530	4,982	5,657	2,547	2835.62	3631	3,945
Port Washington	1,005	771	2,490	4,074	45	111	129	131	115	195	155	135	193
Valley	4,414	4,874	5,783	7,259	3,893	3,268	1,817	1,446	1,250	1,003	1041.81	1385	557
Pleasant Prairie	17,701	16,356	17,702	18,452	11,318	2,560	2,623	2,711	2,498	2,110	2997.05	2430	2,523
Wisconsin Power and Light Co.													
Columbia 1	6,059	6,844	8,652	7,981	3,022	2,655	2,438	2,899	2,781	2,943	2637.58	1975	1,905
Columbia 2	7,943	10,336	8,251	6,874	2,829	2,484	2,329	2,447	2,703	2,655	2243.54	1390	1,444
Edgewater 1-4	16,583	16,684	19,268	12,817	3,781	2,697	1,409	1,503	1,563	1,164	1212.27	1278	999
Edgewater 5	2,960	3,638	4,999	8,743	2,282	1,976	1,552	1,791	1,735	1,442	602.1	361	454
Nelson Dewey	9,997	9,997	4,561	5,413	3,060	2,938	2,382	3,082	3,237	2,626	2141.93	1725	1,740
Rock River	4,367	3,697	4,033	419	373	108	33	6	6	39	28.5	60	60
Wisconsin Public Service Corp.													
Pulliam	6,769	7,087	4,718	8,045	9,235	8,222	3,391	2,705	1,348	854	1237.31	1186	500
Weston 1,2	3,003	3,308	4,453	3,262	3,754	3,039	971	1,212	810	511	491.6	175	15
Weston 3	2,374	2,360	2,450	3,228	4,385	2,529	2,034	1,493	1,165	785	1013.2	889	712
Weston 4							794	922	914	822	998.4	777	746
Municipal Utilities													
Manitowoc	923	923	901	102	88	278	245	234	145	77	57.67	75	34
Major Utility NOX Emissions	**111,481**	**109,186**	**107,746**	**120,453**	**67,449**	**52,117**	**34,981**	**33,647**	**30,578**	**23,753**	**24,730**	**20,804**	**18,994**
Total NOX Emissions	**197,954**	**133,960**	**127,604**	**140,078**	**112,681**	**65,557**	**47,225**	**45,933**	**46,021**	**37,776**	**39,836**	**35,439**	**28,414**

r Total emissions historically revised beginning in 2007.

Source: Personal communication, Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1972-2006) Unpublished data; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions Sulfur Dioxide and Nitrogen Oxides Emissions Report (2007-2015) http://dnr.wi.gov/topic/AirEmissions/.

Electric Utility Sulfur Dioxide Emissions and Emission Rates

1980-2015 (Tons)

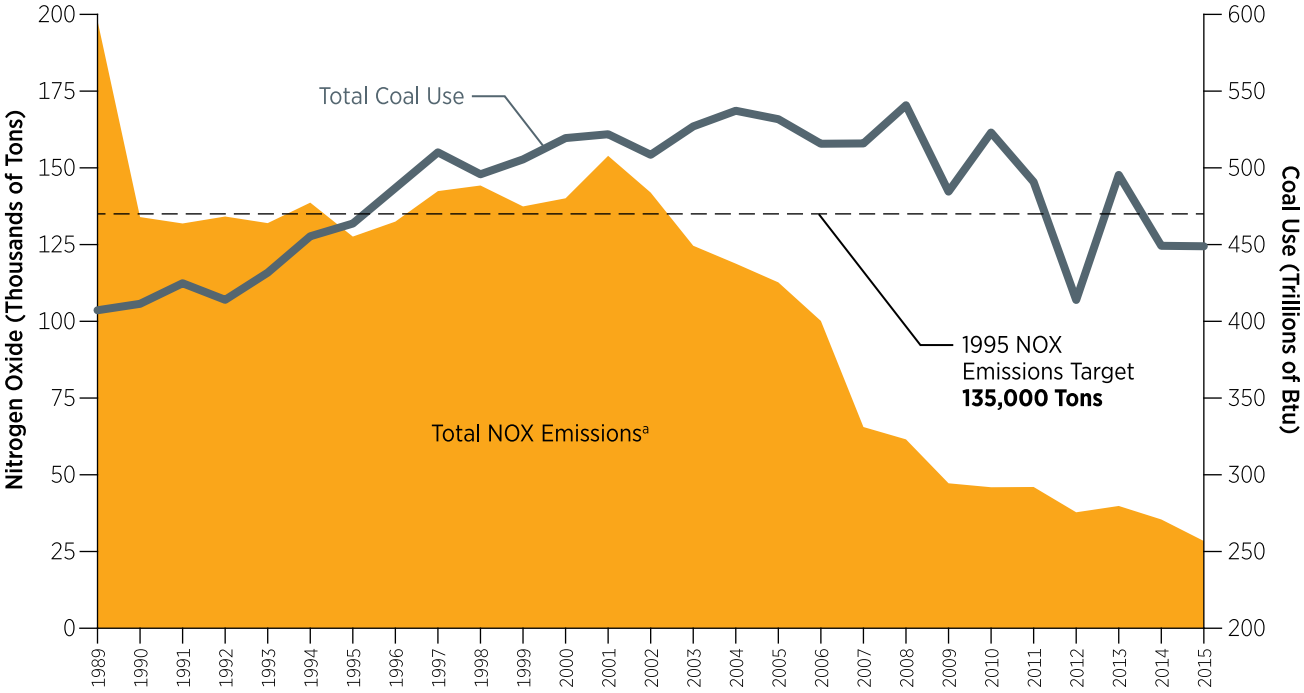
Utility	1980	1985	1990	1995	2000	2005	2007[r]	2010	2011	2012	2013	2014	2015
Dairyland Power Cooperative													
Alma	23,641	14,022	6,510	2,973	3,445	8,816	10,748	4,189	1,196	878	622	474	—
J.P. Madgett	4,088	6,092	7,330	5,693	5,376	7,762	8,028	8,874	3,296	2,379	5,769	3,163	704
Genoa	43,516	39,746	28,130	13,414	8,165	13,074	12,480	4,976	4,827	4,276	361	419	401
Stoneman	4,663	2,768	790	0	0	0	0	0	0	0	0	0	0
Madison Gas and Electric Co.													
Blount Street	8,436	1,826	3,851	4,392	6,923	5,969	2,762	278	1	1	0	0	0
Northern States Power Co.													
Bay Front	2,708	1,012	393	317	786	1,196	1,149	347	286	68	117	64	89
Wisconsin Electric Power Co.													
Oak Creek	122,472	115,562	45,650	23,858	22,831	12,903	13,695	13,032	13,624	2,200	510	505	713
Port Washington	42,295	15,758	4,009	11,517	15,572	2	4	6	1	739	7	6	10
Valley	41,761	15,428	14,053	16,454	15,835	8,482	6,848	4,890	4,226	11	3,468	3,396	1,067
Pleasant Prairie	4,972	13,369	26,933	33,734	28,726	33,656	2,229	1,195	928	3,519	1,174	1,310	1,335
Wisconsin Power and Light Co.													
Blackhawk	2,006	437	0	0	0	0	0	0	0	0	0	0	0
Columbia 1	24,937	19,258	18,616	21,372	15,056	13,729	12,093	14,527	12,340	12,678	11,400	5,518	709
Columbia 2	14,614	7,573	13,909	13,878	13,270	12,370	13,332	13,192	12,429	11,921	10,794	2,339	573
Edgewater 1-4	60,014	42,820	38,021	8,073	8,962	9,103	7,166	5,758	5,785	4,547	5,015	4,667	3,921
Edgewater 5	0	6,546	6,744	8,870	8,744	7,741	9,502	8,779	8,340	6,640	8,745	5,998	6,698
Nelson Dewey	32,304	25,562	10,985	3,425	14,275	14,999	15,064	13,454	11,505	3,304	4,353	3,513	3,585
Rock River	14,139	13,378	7,220	2,954	24	12	2	0	0	3	2	1	1
Wisconsin Public Service Corp.													
Pulliam	42,087	21,910	25,631	4,863	6,314	12,175	10,448	5,517	3,508	1,846	2,503	2,476	959
Weston 1,2	21,009	6,694	6,589	2,905	3,340	3,988	2,983	2,601	1,679	1,133	1,143	394	36
Weston 3	0	6,088	7,598	7,478	8,358	9,540	6,125	7,216	5,593	4,236	5,215	4,539	3,499
Weston 4								1,120	904	687	762	588	563
Municipal Utilities													
Manitowoc	1,318	1,519	1,727	2,267	3,282	217	1,033	593	111	91	174	276	245
Marshfield	1,651	1,959	139	0	0	0	0	0	0	0	0	0	0
Menasha	991	703	695	26	79	0	0	0	0	0	0	0	0
Total Utility SO_2 Emissions	**513,622**	**380,030**	**275,523**	**188,463**	**189,363**	**175,734**	**135,691**	**110,544**	**90,579**	**61,157**	**62,134**	**39,646**	**25,108**
Total SO_2 Emissions	**686,399**	**513,062**	**377,040**	**281,197**	**276,489**	**244,333**	**196,554**	**157,172**	**142,566**	**107,497**	**108,981**	**84,864**	**61,345**

r Total emissions historically revised beginning in 2007.

Source: Personal communication, Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1972-2006) Unpublished data; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions Sulfur Dioxide and Nitrogen Oxides Emissions Report (2007-2015) http://dnr.wi.gov/topic/AirEmissions/.

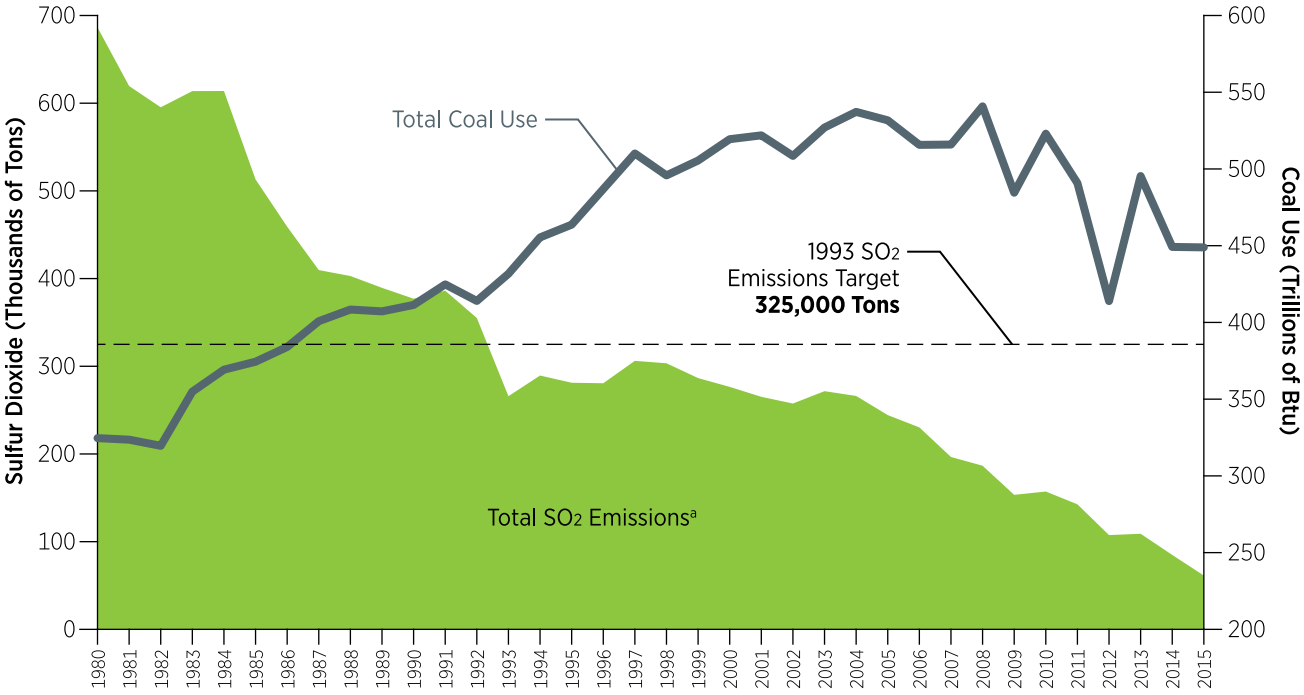
Wisconsin Nitrogen Oxide Emissions and Coal Use

1989-2015 (Thousands of Tons and Trillions of Btu)



Wisconsin Sulfur Dioxide Emissions and Coal Use

1980-2015 (Thousands of Tons and Trillions of Btu)

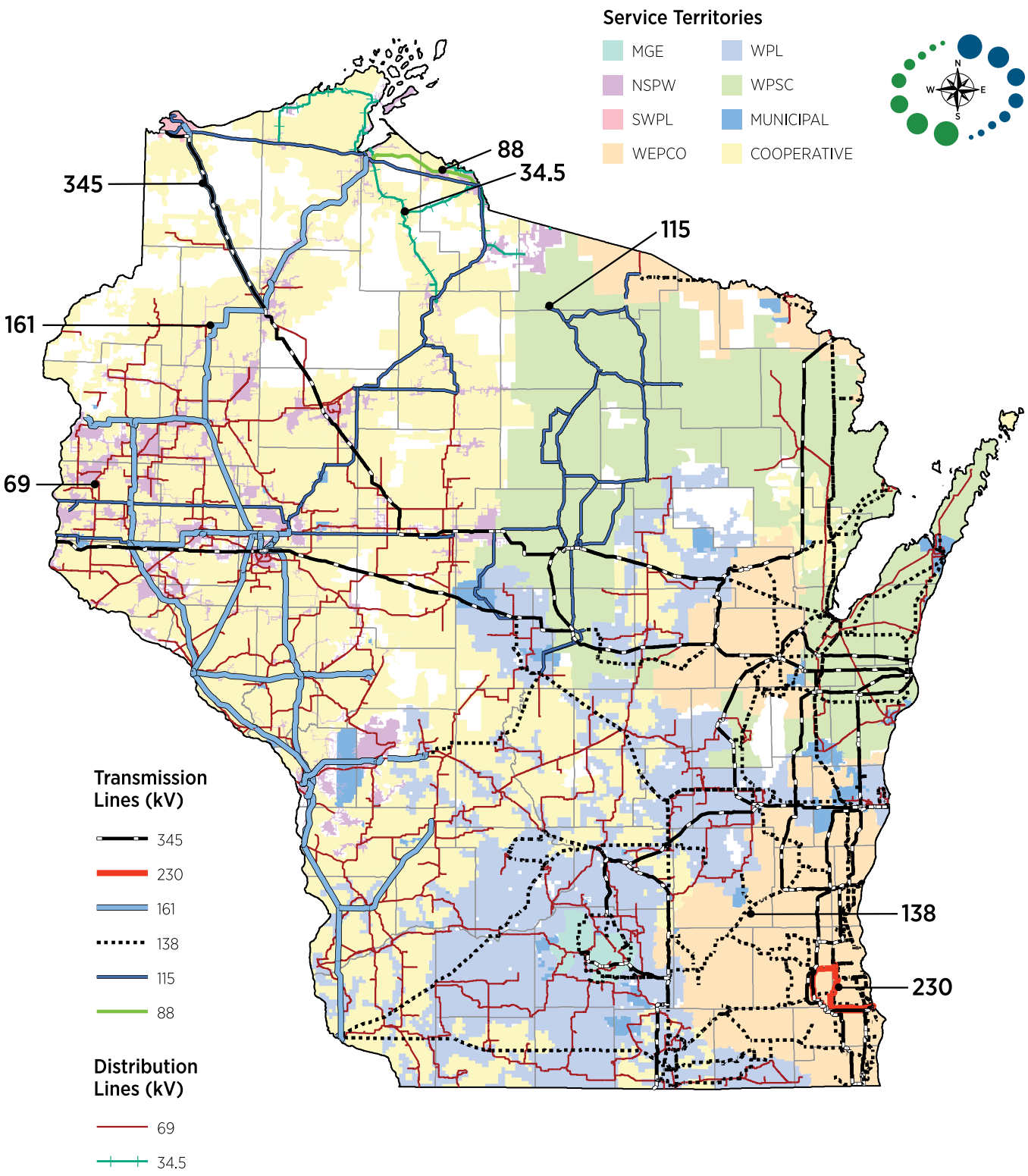


a 1993 target established in Wisconsin Statutes, 285.45(2)(a). http://www.legis.state.wi.us/statutes/Stat0285.pdf. Target is for all major utilities and large sources. 1991 target established in Wisconsin Statutes, 285.47(2). http://www.legis.state.wi.us/statutes/Stat0285.pdf. Target is for all major utilities.

Source: Public Service Commission of Wisconsin, Annual Reports, Investor Owned Utilities: Investor Owned Utilities http://apps.psc.wi.gov/vs2015/annualReports/content/listingIOU.aspx (1970-2015); U.S. Department of Commerce, Bureau of the Census of Housing (1970-1980, 1990, 2000); U.S. Energy Information Administration, State Energy Data Report (October 1996) http://www.eia.gov/state/seds/seds-data-complete.cfm?sid=US, Coal Distribution[DOE/EIA-0125 (95/4Q)] (1980-1995) http://www.eia.gov/coal/distribution/annual/; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions Sulfur Dioxide and Nitrogen Oxides Emissions Report http://dnr.wi.gov/topic/AirEmissions/; Wisconsin Statutes 285.45(2)(a) (1993) http://www.legis.state.wi.us/statutes/Stat0285.pdf, 285.47(2) (1991) http://www.legis.state.wi.us/statutes/Stat0285.pdf.

Wisconsin Electric Utility Service Territories and Overhead Transmission and Distribution Lines

2015



Source: Public Service Commission of Wisconsin.

Industrial Energy Use

The industrial sector is typically associated with the manufacturing, production, and transportation of goods Wisconsinites use every day. The industrial sector also produces heavy equipment, machines, facilities, and tools used by many of Wisconsin's businesses and workers. Energy in the industrial sector is used for a variety of purposes including process heat and cooling and powering machinery.

Industrial energy use also includes energy used for facility heating, air conditioning, and lighting. In 2015, 274.6 trillion Btus of energy were consumed to produce goods and extract raw materials, accounting for 24 percent of all energy consumed in Wisconsin. The economic downturn that began in 2008 resulted in an overall decrease in energy use in the industrial sector. Changes in drilling technology (which resulted in dramatically lower natural gas prices) are illustrated in the industrial sector where natural gas use increased dramatically from 2012 to 2013 and continues to increase while coal use has been in sharp decline.

The Wisconsin Office of Energy Innovation's Focus on Energy Program offers several programs to address the industrial sector's energy consumption, energy efficiency, and use of renewable energy sources including:

- **Renewable Rewards Program** — providing business customers with prescriptive and custom financial incentives for solar electric (PV) and geothermal heat pump systems;

- **Emerging Technologies Program** — identifying new energy efficiency and renewable energy technologies within the industrial, commercial, and agricultural sectors; and,

- **Strategic Energy Management Program** — available to large industrial customers interested in the business advantages of a more sustained, strategic commitment to energy efficiency.

▲ Paper mills use large amounts of energy to turn wood pulp into paper.

▲ Miller Brewing Company in Milwaukee, WI has been brewing beer, and using energy, for more than 100 years.

◀ Wisconsin Film and Bag Recylcing Center, LLC in Shawano, WI reduces the amount of waste sent to landfills by recycing industrial plastic scrap materials for the manufacture of film and bags for industrial packaging applications.

Wisconsin Industrial Energy Use by Type of Fuel

1975-2015 (Trillions of Btu)

Year	Coal	Electricity[a]	Natural Gas	Petroleum	Renewables[r,p]	Total End-Use	Total Resource Use
1975	40.90	36.59	169.10	19.30	12.34	278.23	356.10
1976	42.40	39.81	165.10	24.10	14.15	285.56	370.59
1977	45.20	40.77	141.10	30.30	15.26	272.63	357.29
1978	45.30	42.61	154.80	29.50	17.54	289.75	382.10
1979	45.90	43.86	156.90	18.00	16.66	281.32	374.84
1980	47.20	42.49	144.50	13.20	16.25	263.64	351.68
1981	47.20	43.83	141.70	12.10	17.02	261.85	354.46
1982	47.40	41.95	130.80	6.25	16.14	242.53	329.71
1983	50.40	44.33	127.70	5.66	17.74	245.83	338.32
1984	51.80	47.21	132.10	4.71	19.46	255.29	353.27
1985	51.40	47.58	126.10	2.82	18.41	246.31	347.14
1986	51.50	48.74	115.60	7.64	18.63	242.11	347.04
1987	49.70	51.47	118.50	10.41	18.45	248.53	360.76
1988	51.60	54.71	125.30	9.26	18.40	259.27	378.03
1989	51.60	56.64	127.20	8.38	19.85	263.66	386.35
1990	51.94	62.41	122.60	8.06	21.03	266.05	416.85
1991	50.24	63.44	129.70	6.43	20.44	270.24	405.10
1992	51.35	65.92	131.40	5.68	19.51	273.87	413.05
1993	52.51	69.45	135.00	9.84	19.84	286.64	435.82
1994	57.68	73.82	136.70	11.14	19.60	298.94	458.10
1995	47.17	77.17	147.61	10.78	15.22	297.95	483.11
1996	43.14	77.73	151.46	12.76	15.75	300.84	473.32
1997	43.21	81.98	157.39	14.53	15.84	312.94	494.88
1998	41.86	85.37	143.54	13.73	15.78	300.28	493.18
1999	40.70	83.96	147.45	16.02	14.53	302.67	495.11
2000	42.97	85.76	153.44	14.79	14.91	311.87	507.08
2001	45.31	82.93	134.18	13.64	14.84	290.90	484.15
2002	46.70	82.55	138.67	12.59	15.96	296.47	475.04
2003	45.59	84.69	138.71	12.69	16.13	297.81	482.00
2004	46.96	90.40	142.07	14.75	17.53	311.72	510.02
2005	45.12	83.24	132.27	16.56	15.11	292.30	471.69
2006	46.65	82.99	119.70	14.57	17.44	281.35	444.33
2007	46.56	83.97	122.81	16.41	20.23	289.98	466.95
2008	45.50	81.13	129.61	11.83	15.81	283.88	456.06
2009	41.13	73.44	121.39	5.98	16.28	258.21	411.75
2010	42.14	76.89	122.62	3.57	18.34	263.57	424.86
2011	40.99	77.08	128.63	3.39	19.73	269.82	423.47
2012	34.92	77.20	126.70	4.16	18.97	261.95	412.05
2013	30.48	76.38	139.40	4.07	26.22	276.55	428.91
2014	31.68	77.53	146.20	4.30	26.33	286.05	433.06
2015	25.53	78.60	141.60	3.43	25.46	274.62	425.29

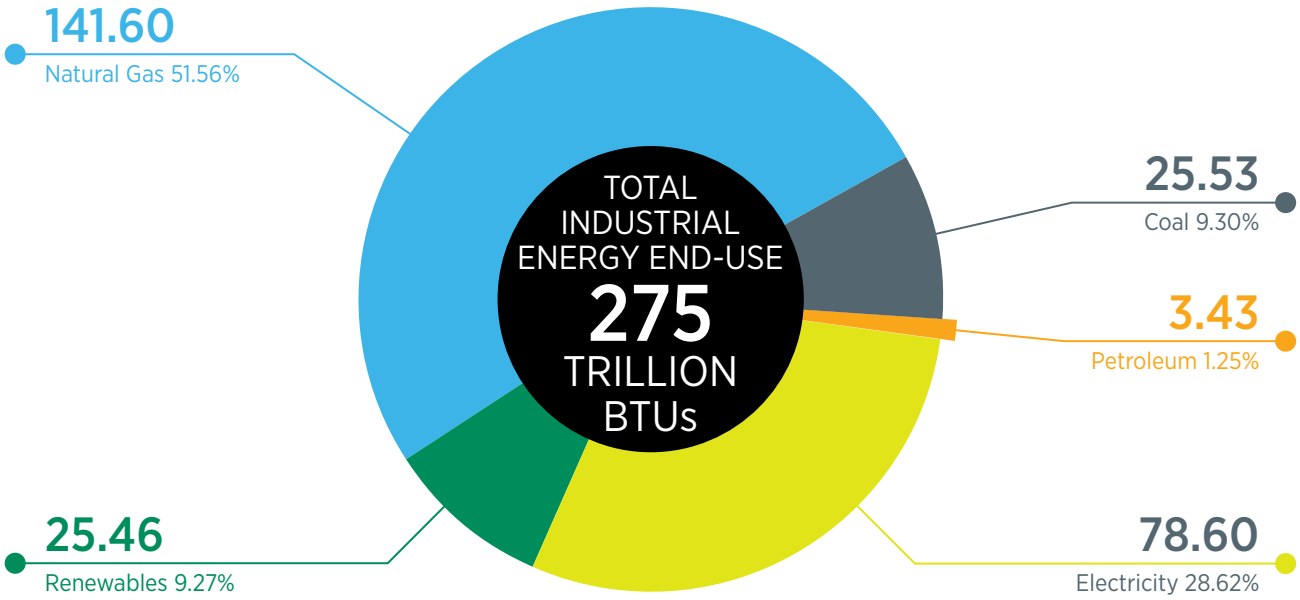
a Includes energy resources (and losses) attributable to electricity generation. Revised in 2015, 1990-present does not include electricity used by the Agricultural sector.

r Historical revision beginning in 2008 due to revision in methodology and data sources.

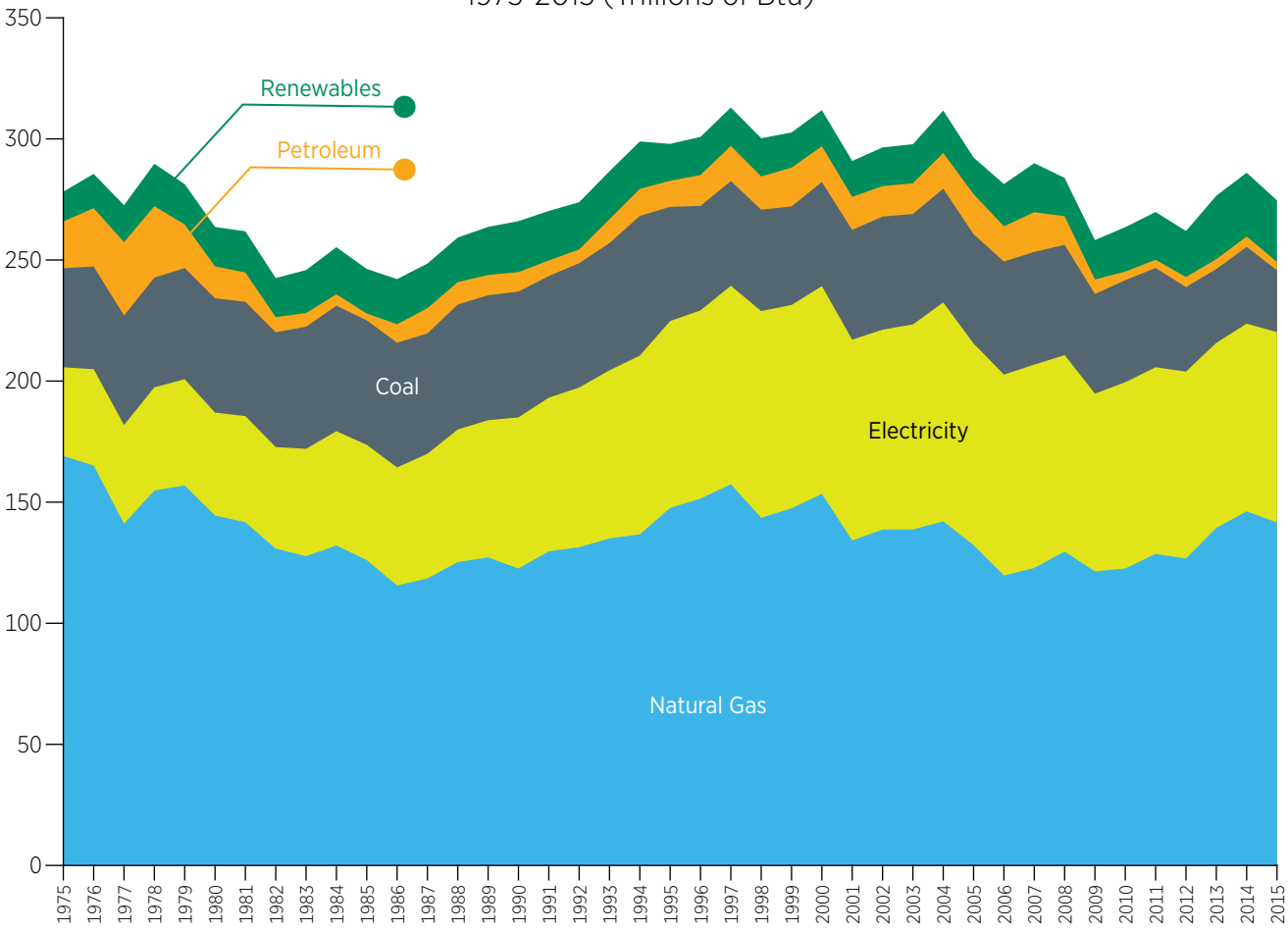
p Preliminary data 2008-2015.

Source: Personal communication, Wisconsin Investor-Owned Utilities (2008-2012), Wisconsin public utilities (1986-2015); Public Service Commission of Wisconsin, Form PSC-AF2 Monthly Finanical and Statistical Reports (1994-2007) http://apps.psc.wi.gov/vs2015/ERF/ERFhome.aspx, Accounts and Finance Division, Generating Plants Operated by Wisconsin Electric Utilities, Bulletin #46 (1971-1994), Annual Reports, Investor Owned Utilities (2005-2015) Unpublished data, Strategic Energy Assessment 2024 (2018) report not yet published; U.S. Energy Information Administration, Distillate Fuel Oil and Kerosene Sales by End-Use (1984-2015) http://www.eia.gov/dnav/pet/pet_cons_821ker_dcu_SWI_a.htm, Sales of Residual Fuel Oil by End-Use http://www.eia.gov/dnav/pet/pet_cons_821rsda_dcu_SWI_a.htm (1984-2012), State Energy Date System (1970-2015) https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_use/ind/use_ind_WI.html&sid=WI, Retail Sales of Electricity by State by Sector by Provider (EIA-861) (2003-2015) https://www.eia.gov/electricity/data/state/, Electric Sales and Revenue (1989-1999), Electric Power Monthly, (1989-2012); Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1995-2015) Unpublished data.

Wisconsin Industrial Energy Use by Type of Fuel
2015 (Trillions of Btu and Percent of Total)



Wisconsin Industrial Energy Use by Type of Fuel
1975-2015 (Trillions of Btu)



Wisconsin Industrial Energy Prices by Type of Fuel

1975-2015 (Dollars per Million Btu)

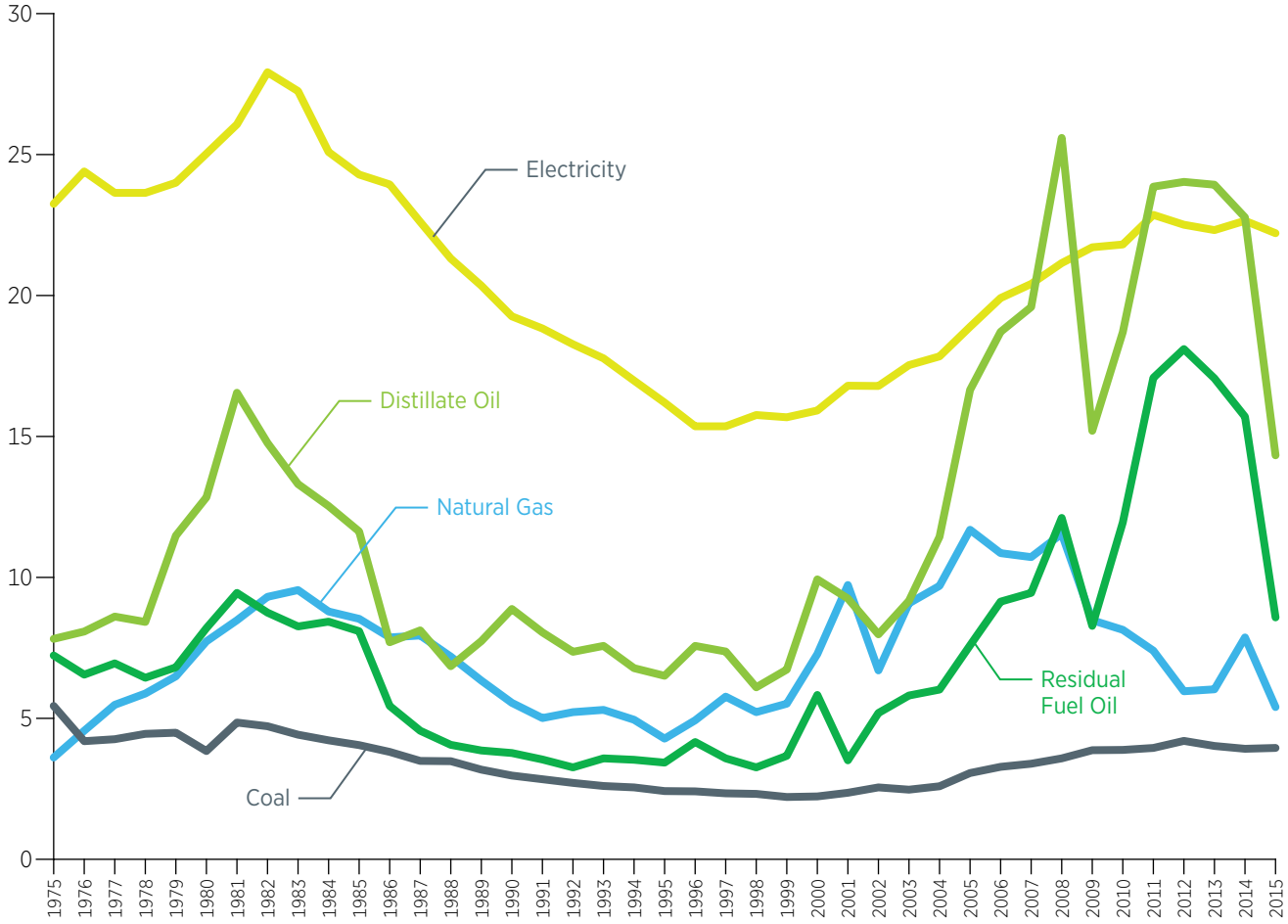
	Nominal Dollars					2015 Dollars				
Year	Distillate Oil[a]	Residual Fuel Oil[b]	Natural Gas	Coal	Electricity	Distillate Oil[a]	Residual Fuel Oil[b]	Natural Gas	Coal	Electricity
1975	2.23	2.06	1.03	1.55	6.63	7.82	7.23	3.61	5.44	23.25
1976	2.43	1.97	1.37	1.26	7.34	8.08	6.55	4.56	4.19	24.40
1977	2.75	2.22	1.75	1.36	7.55	8.61	6.95	5.48	4.26	23.64
1978	2.88	2.20	2.01	1.52	8.08	8.42	6.44	5.88	4.45	23.64
1979	4.25	2.52	2.40	1.66	8.88	11.48	6.81	6.49	4.49	24.00
1980	5.18	3.31	3.12	1.55	10.10	12.84	8.20	7.73	3.84	25.03
1981	7.30	4.17	3.74	2.14	11.50	16.55	9.45	8.48	4.85	26.07
1982	6.92	4.10	4.36	2.21	13.08	14.77	8.75	9.31	4.72	27.92
1983	6.48	4.02	4.65	2.15	13.27	13.31	8.26	9.55	4.42	27.25
1984	6.32	4.25	4.43	2.13	12.65	12.53	8.43	8.79	4.22	25.09
1985	6.05	4.21	4.44	2.11	12.64	11.63	8.09	8.53	4.05	24.29
1986	4.09	2.89	4.18	2.02	12.71	7.70	5.44	7.87	3.81	23.94
1987	4.42	2.48	4.32	1.90	12.31	8.12	4.56	7.94	3.49	22.61
1988	3.86	2.29	4.05	1.96	12.01	6.85	4.06	7.19	3.48	21.31
1989	4.53	2.26	3.71	1.86	11.91	7.74	3.86	6.34	3.18	20.35
1990	5.39	2.29	3.37	1.80	11.69	8.88	3.77	5.55	2.97	19.26
1991	5.05	2.22	3.14	1.78	11.81	8.05	3.54	5.01	2.84	18.83
1992	4.72	2.09	3.35	1.74	11.72	7.36	3.26	5.22	2.71	18.27
1993	4.97	2.35	3.48	1.71	11.67	7.57	3.58	5.30	2.60	17.77
1994	4.55	2.37	3.32	1.71	11.39	6.78	3.53	4.95	2.55	16.98
1995	4.46	2.35	2.93	1.66	11.09	6.51	3.43	4.28	2.42	16.20
1996	5.28	2.90	3.44	1.68	10.71	7.57	4.16	4.93	2.41	15.36
1997	5.23	2.54	4.09	1.66	10.89	7.37	3.58	5.77	2.34	15.36
1998	4.37	2.34	3.74	1.66	11.30	6.10	3.26	5.22	2.32	15.76
1999	4.90	2.67	4.02	1.61	11.41	6.73	3.67	5.52	2.21	15.68
2000	7.39	4.34	5.42	1.66	11.85	9.93	5.83	7.28	2.23	15.92
2001	7.04	2.67	7.41	1.80	12.79	9.25	3.51	9.73	2.36	16.80
2002	6.17	4.01	5.18	1.97	12.98	7.98	5.19	6.70	2.55	16.79
2003	7.23	4.58	7.16	1.95	13.82	9.17	5.81	9.08	2.47	17.53
2004	9.27	4.88	7.86	2.10	14.45	11.44	6.02	9.70	2.59	17.84
2005	13.92	6.35	9.78	2.56	15.80	16.65	7.59	11.69	3.06	18.89
2006	16.13	7.88	9.36	2.83	17.16	18.71	9.14	10.86	3.28	19.91
2007	17.33	8.36	9.49	3.00	18.06	19.59	9.45	10.72	3.39	20.41
2008	23.09	10.93	10.42	3.23	19.08	25.59	12.11	11.55	3.58	21.15
2009	13.82	7.53	7.71	3.52	19.74	15.20	8.28	8.48	3.87	21.71
2010	17.20	11.00	7.49	3.57	20.07	18.70	11.95	8.14	3.88	21.81
2011	22.41	16.04	6.95	3.71	21.47	23.86	17.08	7.40	3.95	22.86
2012	22.99	17.32	5.70	4.02	21.53	24.03	18.10	5.96	4.20	22.51
2013	23.26	16.58	5.86	3.91	21.69	23.93	17.06	6.03	4.02	22.32
2014	22.53	15.53	7.79	3.88	22.41	22.77	15.70	7.87	3.92	22.65
2015	14.33	8.58	5.4	3.95	22.21	14.33	8.58	5.40	3.95	22.21

a Beginning in 2011, refiner retail price in Wisconsin used for distillate oil price; reports previously used were suspended as part of U.S. budget sequester.

b Residual fuel oil price not available for Wisconsin beginning in 2009 due to publishing policies of the U.S. Energy Information Administration.

Source: U.S. Energy Information Administration, State Energy Data System Prices and Expenditures (1970-2015) http://www.eia.gov/state/seds/seds-data-complete.cfm#PricesExpenditures, Wisconsin No 2 Distillate Retail Sales by Refiners (2011 – 2015) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPD2_PTG_SWI_DPG&f=A, Midwest (PADD 2) Residual Fuel Oil Retail Sales by All Sellers (Dollars per Gallon) (2009-2010) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPPR_PTA_R20_DPG&f=A, U.S. Residual Fuel Oil Retail Sales by Refiners (2009– 2015) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPPR_PTG_NUS_DPG&f=A, State Btu Unit Price Data Base (May 1981) unpublished, State Energy Consumption, Price and Expenditure Report (1960-2008) http://www.eia.doe.gov/emeu/states/_seds.html, Petroleum Marketing Monthly (January 1985-March 2008), Quarterly Coal Report, [DOE/EIA-0121(2009/4Q)] (April 2010) http://www.eia.doe.gov/cneaf/coal/quarterly/qcr.pdf, Petroleum Marketing Annual (2007-2009) [DOE/EIA-0487 (2009)] (August 2010); Oil Daily/Daily Oil and Gas Price Review (2008-2009).

Wisconsin Industrial Energy Prices by Type of Fuel
1975-2015 (2015 Dollars per Million Btu)



Residential Energy Use

The residential sector of Wisconsin includes many different housing types: single family, multi-family housing, apartments, condominiums, and mobile homes. Residents of Wisconsin use energy at home every day for space heating and cooling, water heating, lighting, and powering electronic devices and appliances. Several fuel types are used to provide this energy, including renewables, electricity, and in the past, coal.

Since 1975, residential use of petroleum has declined substantially from 87.6 tBtu to just 31.1 tBtu in 2015. By contrast, electricity consumption has increased 95 percent from 37.2 tBtu in 1975 to 72.41 tBtu in 2015, attributable to the exponential growth in the number of personal electronic devices from cell phones to televisions and computers contributes. Coal use for in-home energy has remained at zero since 2008, representing a shift away from coal as a method of home heating in Wisconsin. Natural gas is the dominant fuel used in Wisconsin homes – primarily used for space heating – making up 56 percent of total residential energy use in 2015. From 2014 to 2015, natural gas consumption in the residential sector decreased 15.2 percent, the first decrease in natural gas consumption since 2012, consistent with a broader trend of a decrease of fuel consumption for home heating in 2015. In total, the residential sector of Wisconsin uses 21 percent of all energy used in Wisconsin, or 235.16 tBtus.

As part of the State Heating Oil and Propane Pricing Program (SHOPP) – a joint effort between the U.S. Energy Information Administration and State Energy Offices to monitor local pricing for winter heating fuels – the Wisconsin Office of Energy Innovation (OEI) collects prices of heating oil and liquefied petroleum gas (LPG, commonly known as propane) from heating fuel retailers. This information is made available to the public and is used by policymakers, industry analysts, and consumers. Tracking the price of heating fuels, especially in winter, is critical to the state of Wisconsin as approximately 250,000 residents rely on these heating fuels to stay warm.

▲ Outside the model home at Tim O'Brien Homes' Red Fox Crossing Development in New Berlin, the first "Net Zero" electricity neighborhood in Wisconsin. All the homes are built to generate enough solar power to offset electricity use and will be certified through Focus on Energy's New Home Certification program.

▲ A Focus on Energy representative hauls away the 80,000th appliance recycled in the history of Focus on Energy's Appliance Recycling program.

▲ A Wisconsin home kitchen uses energy daily with common appliances and lighting. Photo owned by Mark Shanahan.

Wisconsin Residential Energy Use, by Type of Fuel

1975-2015 (Trillions of Btu)

Year	Coal	Electricity[a]	Natural Gas	Petroleum[b]	Renewables[c,p]	Total End-Use	Total Resource Use[d]
1975	3.80	37.18	122.43	87.60		251.01	330.13
1976	4.40	38.25	125.11	85.60		253.36	335.05
1977	3.20	39.65	120.79	80.60		244.24	326.57
1978	2.10	41.00	130.61	77.70		251.41	340.26
1979	2.60	41.74	126.64	72.50		243.47	332.47
1980	2.30	42.71	123.99	71.20		240.20	328.69
1981	2.00	42.36	112.00	61.60		217.96	307.46
1982	1.80	43.06	119.42	65.26		229.54	319.03
1983	1.50	44.70	113.03	60.48		219.71	312.96
1984	1.10	44.76	113.92	56.34		216.12	309.03
1985	0.90	45.25	116.94	58.62		221.71	317.60
1986	0.70	46.10	112.12	57.76		216.68	315.93
1987	0.40	47.34	103.84	51.99		203.56	306.78
1988	0.40	50.53	121.97	58.34		231.25	340.94
1989	0.40	49.84	127.63	58.95		236.82	344.80
1990	0.44	55.92	114.67	51.36		222.40	357.54
1991	0.42	59.21	124.86	50.00		234.50	360.37
1992	0.40	56.71	124.10	48.92		230.13	349.85
1993	0.38	59.30	131.43	53.25		244.35	371.72
1994	0.36	60.27	129.53	53.02		243.18	373.14
1995	0.33	63.60	137.51	48.40		249.84	402.44
1996	0.31	63.77	149.82	52.86		266.76	408.27
1997	0.29	63.18	137.31	47.56		248.34	388.54
1998	0.27	65.15	117.22	38.48		221.11	368.32
1999	0.24	66.56	129.14	42.33		238.27	390.82
2000	0.22	68.02	136.45	40.10		244.79	399.62
2001	0.20	69.69	126.40	41.33		237.62	400.00
2002	0.18	73.64	138.20	38.92		250.93	410.22
2003	0.16	72.92	143.20	40.64		256.92	415.50
2004	0.13	72.33	136.12	39.83	0.00523	248.42	407.07
2005	0.11	76.65	132.92	37.91	0.00718	247.60	412.80
2006	0.0888	74.33	121.89	39.34	0.01153	235.67	381.65
2007	0.0666	76.36	133.00	36.76	0.01500	246.20	407.13
2008	0	75.00	142.54	36.52	0.01078	254.08	413.26
2009	0	73.11	135.04	32.42	0.01449	240.58	393.42
2010	0	76.11	124.85	28.33	0.02200	229.31	388.97
2011	0	75.60	131.26	27.50	0.01613	234.37	385.06
2012	0	75.18	114.69	24.56	0.02265	214.45	360.62
2013	0	75.41	146.60	30.87	0.02101	252.90	403.33
2014	0	74.83	155.20	34.47	0.02231	264.52	406.41
2015	0	72.41	131.60	31.14	0.01420	235.16	373.95

a Methodology historically revised.

b Propane values revised to agreed with federal data.

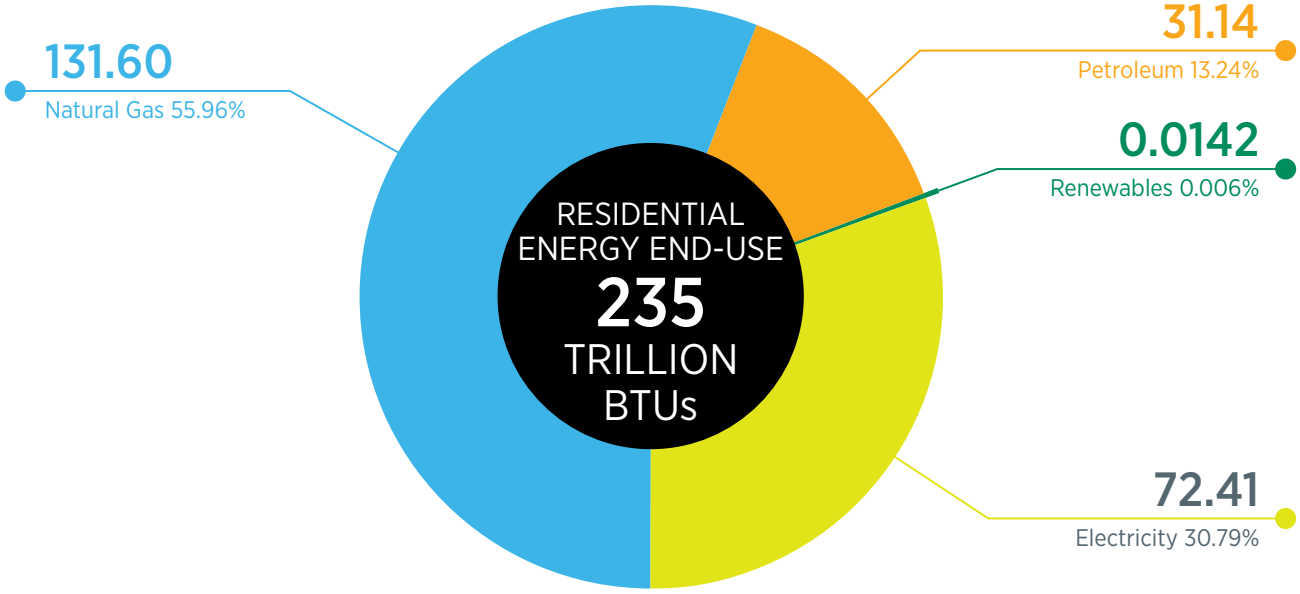
c Historically revised, residential wood use removed, Residential Wood Use Model no longer in use. Includes solar photovoltaic, solar thermal, wind, biogas.

d Includes energy resources (and losses) attributable to electricity generation.

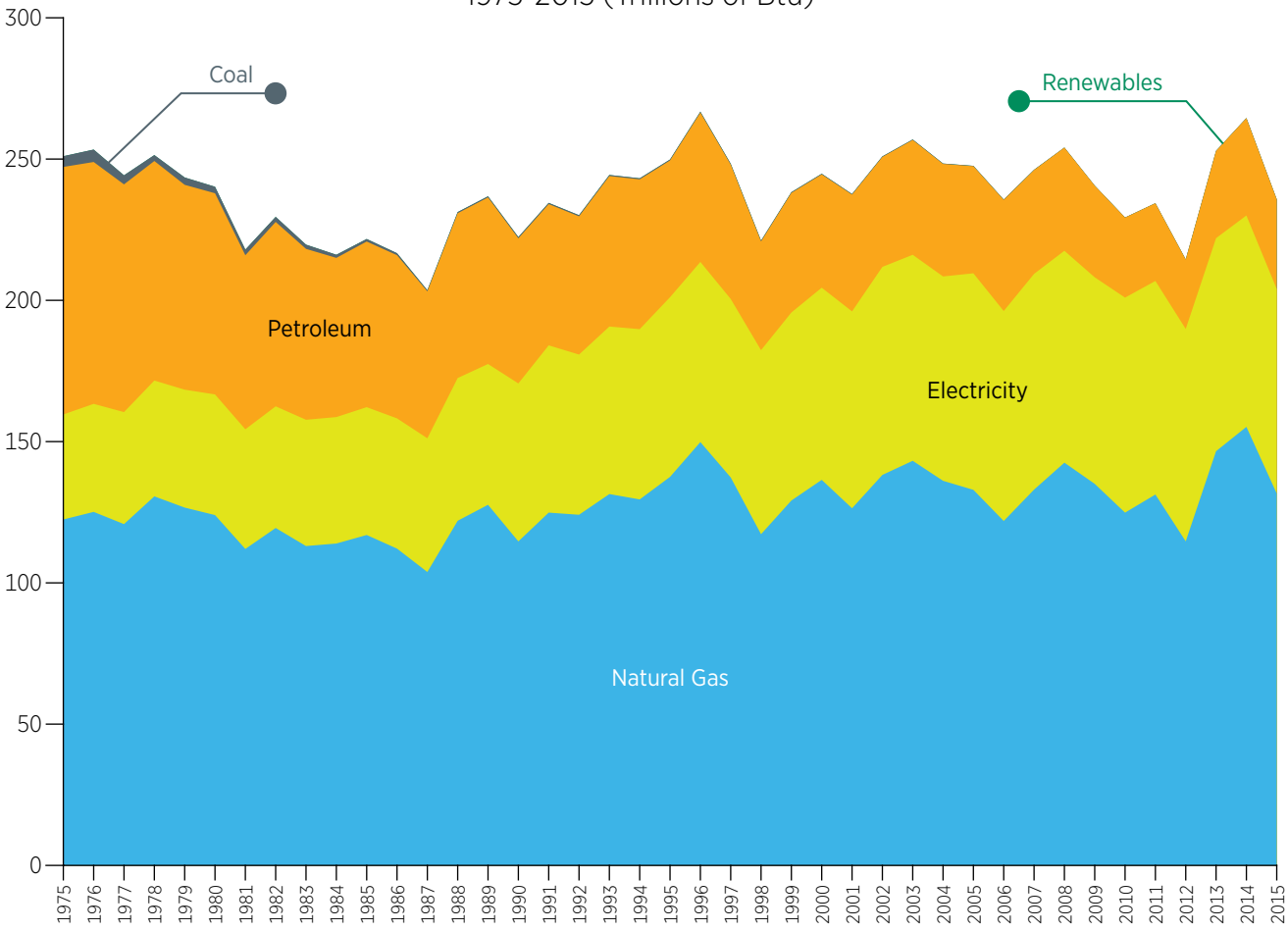
p Preliminary.

Source: Personal communication, Focus on Energy (2005-2015), Wisconsin Investor-Owned Utilities (2008-2012), Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions (1995-2007) Unpublished data; Public Service Commission of Wisconsin, Accounts and Finance Division, Generating Plants Operated by Wisconsin Electric Utilities, Bulletin #46 (1971-1994), Annual Reports, Investor Owned Utilities (2005-2015) Unpublished data, Renewable Portfolio Summary Report (2012-2015) https://psc.wi.gov/Pages/Programs/RpsCompliance.aspx; U.S. Department of Agriculture, National Agriculture Statistics Service (2005-2012) Unpublished data; U.S. Energy Information Administration, Distillate Fuel Oil and Kerosene Sales by End-Use (1984-2015) http://www.eia.gov/dnav/pet/pet_cons_821ker_dcu_SWI_a.htm, Retail Sales of Electricity by State by Sector by Provider (EIA-861) (2003-2015) https://www.eia.gov/electricity/data/state/, Electric Sales and Revenue (1989-1999), Electric Power Monthly, (1989-2012), Natural Gas Annual (1970-2015) https://www.eia.gov/dnav/ng/ng_sum_lsum_dcu_SWI_a.htm;Wisconsin Department of Administration, Division of Energy, Wisconsin Residential Wood Energy Model (1981-2012) Unpublished; Wisconsin Department of Natural Resources, Annual Survey of Point Source Emissions Sulfur Dioxide and Nitrogen Oxides Emissions Report (2007-2015) http://dnr.wi.gov/topic/AirEmissions/.

Wisconsin Residential Energy Use, by Type of Fuel
2015 (Trillions of Btu and Percent of Total)



Wisconsin Residential Energy Use, by Type of Fuel
1975-2015 (Trillions of Btu)



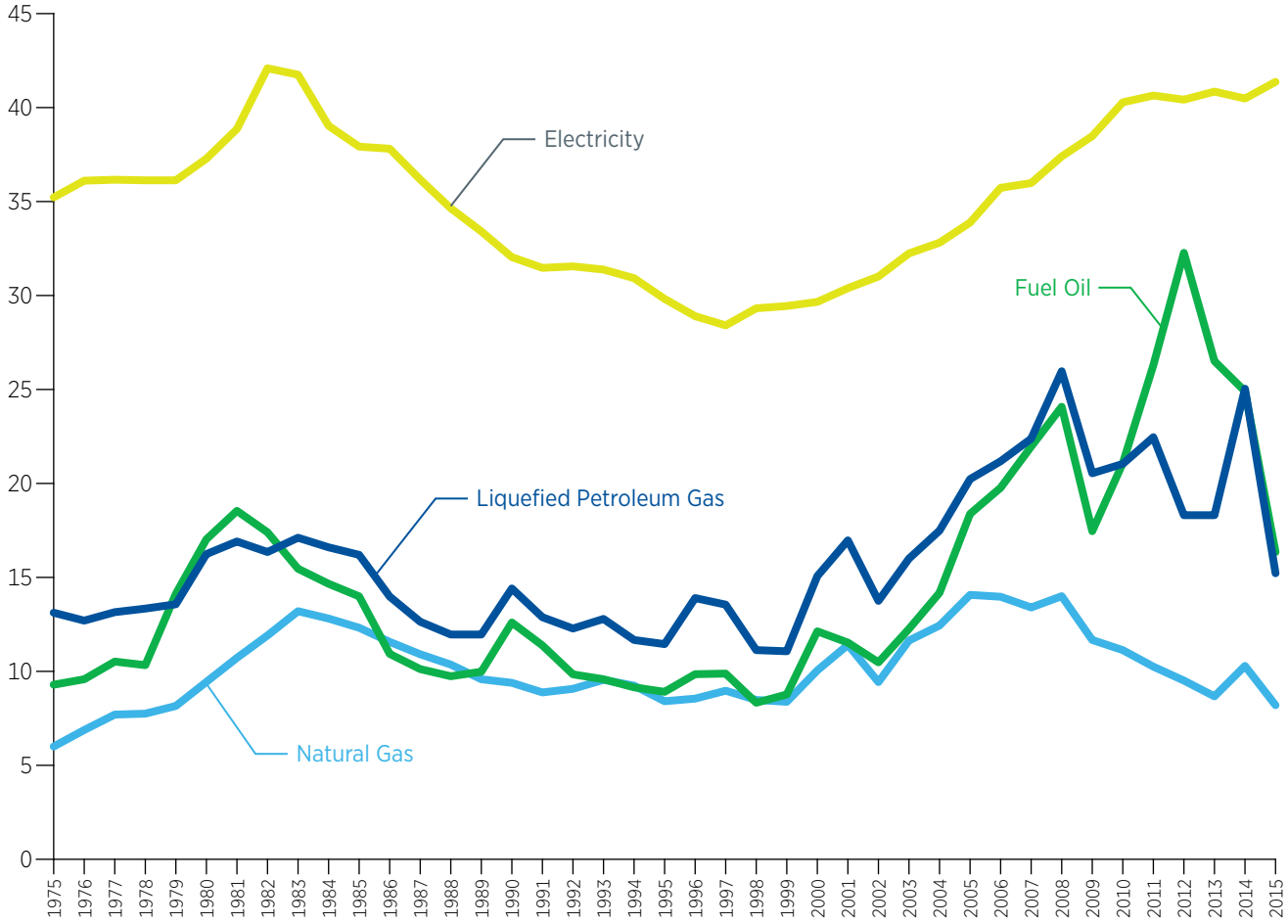
Wisconsin Residential Energy Prices, by Type of Fuel

1975-2015 (Dollars per Million Btu)

	Nominal Dollars				2015 Dollars			
Year	Fuel Oil	Liquefied Petroleum Gas	Natural Gas	Electricity	Fuel Oil	Liquefied Petroleum Gas	Natural Gas	Electricity
1975	2.65	3.74	1.71	10.04	9.29	13.12	6.00	35.22
1976	2.88	3.82	2.07	10.86	9.58	12.70	6.88	36.11
1977	3.36	4.20	2.46	11.55	10.52	13.15	7.70	36.16
1978	3.53	4.56	2.65	12.35	10.33	13.34	7.75	36.13
1979	5.23	5.02	3.02	13.37	14.13	13.57	8.16	36.13
1980	6.87	6.55	3.81	15.04	17.03	16.24	9.44	37.28
1981	8.18	7.46	4.73	17.14	18.54	16.91	10.72	38.86
1982	8.15	7.66	5.58	19.72	17.40	16.35	11.91	42.09
1983	7.53	8.33	6.43	20.33	15.46	17.11	13.20	41.75
1984	7.39	8.37	6.46	19.68	14.66	16.60	12.81	39.03
1985	7.28	8.43	6.41	19.73	13.99	16.20	12.32	37.92
1986	5.80	7.42	6.14	20.07	10.93	13.98	11.57	37.81
1987	5.51	6.88	5.94	19.69	10.12	12.64	10.91	36.17
1988	5.49	6.74	5.84	19.52	9.74	11.96	10.36	34.64
1989	5.84	7.00	5.61	19.56	9.98	11.96	9.58	33.41
1990	7.65	8.75	5.70	19.45	12.60	14.41	9.39	32.04
1991	7.14	8.08	5.57	19.74	11.38	12.88	8.88	31.47
1992	6.31	7.88	5.82	20.24	9.84	12.28	9.07	31.55
1993	6.29	8.40	6.27	20.61	9.58	12.79	9.55	31.38
1994	6.14	7.83	6.20	20.74	9.15	11.67	9.24	30.92
1995	6.10	7.84	5.76	20.42	8.91	11.45	8.41	29.82
1996	6.87	9.69	5.96	20.15	9.85	13.90	8.55	28.90
1997	7.01	9.61	6.36	20.15	9.88	13.55	8.97	28.41
1998	5.97	7.98	6.08	21.02	8.33	11.13	8.48	29.32
1999	6.38	8.06	6.10	21.43	8.77	11.07	8.38	29.44
2000	9.03	11.22	7.48	22.08	12.13	15.07	10.05	29.66
2001	8.78	12.92	8.69	23.14	11.53	16.97	11.41	30.39
2002	8.10	10.63	7.29	23.97	10.48	13.75	9.43	31.01
2003	9.67	12.62	9.18	25.42	12.26	16.00	11.64	32.24
2004	11.49	14.17	10.08	26.58	14.18	17.49	12.44	32.81
2005	15.37	16.92	11.77	28.33	18.38	20.23	14.07	33.88
2006	17.04	18.26	12.04	30.80	19.77	21.18	13.97	35.73
2007	19.43	19.80	11.86	31.84	21.96	22.38	13.40	35.98
2008	21.73	23.43	12.63	33.74	24.08	25.97	14.00	37.40
2009	15.87	18.67	10.61	34.98	17.46	20.54	11.67	38.48
2010	19.40	19.36	10.24	37.07	21.08	21.04	11.13	40.28
2011	24.69	21.09	9.63	38.17	26.29	22.46	10.25	40.64
2012	30.87	17.51	9.10	38.66	32.27	18.31	9.51	40.42
2013	25.76	17.80	8.42	39.70	26.51	18.31	8.66	40.85
2014	24.63	24.78	10.14	40.05	24.90	25.04	10.25	40.48
2015	16.35	15.22	8.16	41.37	16.35	15.22	8.16	41.37

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Implicit Price Deflators for Gross Domestic Product (1970 – 2015) https://www.bea.gov/iTable/iTable.cfm?reqid=19&step=2#reqid=19&step=3&isuri=1&1910=x&0=-99&1921=survey&1903=13&1904=1985&1905=2018&1906=a&1911=0; U.S. Energy Information Administration, State Energy Data System Prices and Expenditures (1970-2015) http://www.eia.gov/state/seds/seds-data-complete.cfm#PricesExpenditures.

Wisconsin Residential Energy Prices, by Type of Fuel
1975-2015 (2015 Dollars per Million Btu)



Wisconsin Residential Winter Energy Prices, by Type of Fuel

Winter Heating Season (Dollars per Gallon and Million Btu)

	$/Gallon		$/MMBtu		
2012-13	Heating Oil	Propane	Heating Oil	Propane	Natural Gas
Oct 2	3.72	1.44	15.06	26.79	6.05
Oct 8	3.74	1.44	15.06	26.93	6.05
Oct 15	3.83	1.45	15.15	27.64	6.05
Oct 22	3.79	1.46	15.30	27.31	6.05
Oct 29	3.69	1.48	15.48	26.59	6.05
Nov 5	3.62	1.48	15.51	26.09	7.77
Nov 12	3.61	1.49	15.59	25.99	7.77
Nov 19	3.63	1.48	15.51	26.19	7.77
Nov 26	3.64	1.49	15.60	26.26	7.77
Dec 3	3.68	1.49	15.55	26.51	7.85
Dec 10	3.60	1.48	15.54	25.94	7.85
Dec 17	3.57	1.48	15.48	25.71	7.85
Dec 26	3.55	1.48	15.49	25.58	7.85
Jan 2	3.55	1.49	15.56	25.59	7.28
Jan 7	3.51	1.49	15.62	25.34	7.28
Jan 14	3.50	1.48	15.50	25.21	7.28
Jan 22	3.52	1.50	15.66	25.39	7.28
Jan 28	3.55	1.52	15.90	25.58	7.28
Feb 4	3.68	1.51	15.86	26.51	7.32
Feb 11	3.77	1.52	15.88	27.18	7.32
Feb 18	3.80	1.51	15.83	27.41	7.32
Feb 25	3.77	1.52	15.89	27.18	7.32
Mar 4	3.69	1.51	15.86	26.58	7.20
Mar 11	3.67	1.52	15.88	26.49	7.20
Mar 18	3.65	1.51	15.77	26.29	7.20
Average Price	3.65	1.49	15.58	26.33	7.25

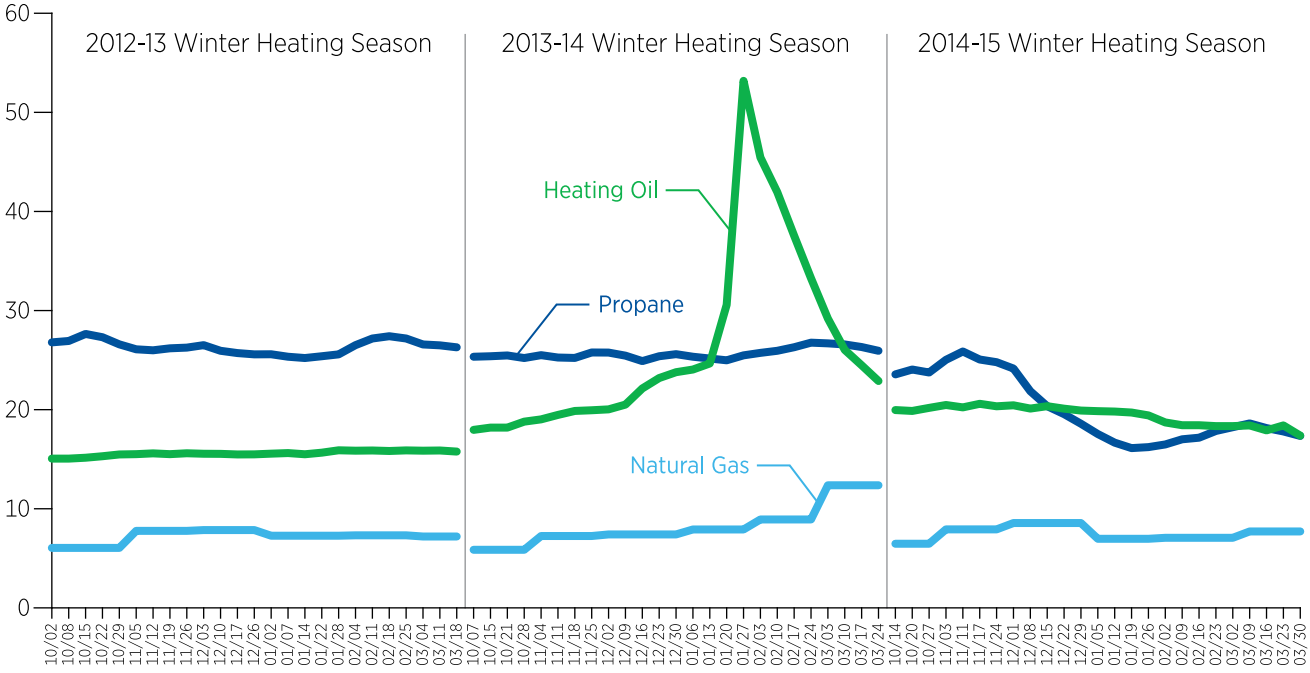
	$/Gallon		$/MMBtu		
2013-14	Heating Oil	Propane	Heating Oil	Propane	Natural Gas
Oct 7	3.51	1.64	17.96	25.34	5.86
Oct 15	3.52	1.66	18.19	25.39	5.86
Oct 21	3.53	1.66	18.19	25.47	5.86
Oct 28	3.50	1.72	18.79	25.21	5.86
Nov 4	3.54	1.74	19.02	25.50	7.25
Nov 11	3.50	1.78	19.47	25.26	7.25
Nov 18	3.50	1.82	19.87	25.22	7.25
Nov 25	3.57	1.82	19.94	25.77	7.25
Dec 2	3.57	1.83	20.03	25.76	7.41
Dec 9	3.53	1.87	20.51	25.45	7.41
Dec 16	3.45	2.02	22.14	24.90	7.41
Dec 23	3.52	2.12	23.19	25.39	7.41
Dec 30	3.55	2.17	23.78	25.60	7.41
Jan 6	3.52	2.20	24.05	25.34	7.91
Jan 13	3.49	2.25	24.66	25.16	7.91
Jan 20	3.47	2.79	30.58	24.98	7.91
Jan 27	3.53	4.86	53.18	25.48	7.91
Feb 3	3.57	4.15	45.45	25.73	8.92
Feb 10	3.60	3.83	41.95	25.94	8.92
Feb 17	3.65	3.43	37.55	26.30	8.92
Feb 24	3.71	3.04	33.26	26.76	8.92
Mar 3	3.70	2.67	29.19	26.69	12.37
Mar 10	3.69	2.38	26.03	26.58	12.37
Mar 17	3.65	2.24	24.48	26.32	12.37
Mar 24	3.60	2.09	22.89	25.94	12.37
Average Price	3.52	1.81	19.77	25.39	6.84

Wisconsin Residential Winter Energy Prices, by Type of Fuel

Winter Heating Season (Dollars per Gallon and Million Btu)

	$/Gallon		$/MMBtu		
2014-15	Heating Oil	Propane	Heating Oil	Propane	Natural Gas
Oct 14	3.27	1.82	19.96	23.56	6.47
Oct 20	3.34	1.82	19.87	24.05	6.47
Oct 27	3.29	1.84	20.18	23.75	6.47
Nov 3	3.47	1.87	20.47	25.03	7.92
Nov 11	3.59	1.85	20.23	25.87	7.92
Nov 17	3.48	1.88	20.59	25.06	7.92
Nov 24	3.44	1.86	20.34	24.79	7.92
Dec 1	3.35	1.87	20.44	24.15	8.56
Dec 8	3.03	1.84	20.11	21.86	8.56
Dec 15	2.82	1.86	20.35	20.35	8.56
Dec 22	2.71	1.84	20.10	19.55	8.56
Dec 29	2.58	1.82	19.91	18.58	8.56
Jan 5	2.43	1.81	19.85	17.54	6.97
Jan 12	2.31	1.81	19.81	16.67	6.97
Jan 19	2.24	1.80	19.71	16.12	6.97
Jan 26	2.25	1.77	19.42	16.22	6.97
Feb 2	2.29	1.71	18.71	16.49	7.07
Feb 9	2.36	—	18.43	17.01	7.07
Feb 16	2.38	1.68	18.43	17.17	7.07
Feb 23	2.48	1.68	18.34	17.85	7.07
Mar 2	2.53	1.68	18.34	18.23	7.07
Mar 9	2.58	1.68	18.41	18.61	7.71
Mar 16	2.52	1.64	17.91	18.14	7.71
Mar 23	2.47	1.68	18.41	17.80	7.71
Mar 30	2.41	1.59	17.38	17.35	7.71
Average Price	3.20	1.85	20.21	23.05	7.65

Wisconsin Residential Winter Energy Prices, by Type of Fuel, Winter Heating Season 2012-2015 (Dollars per Million Btu)



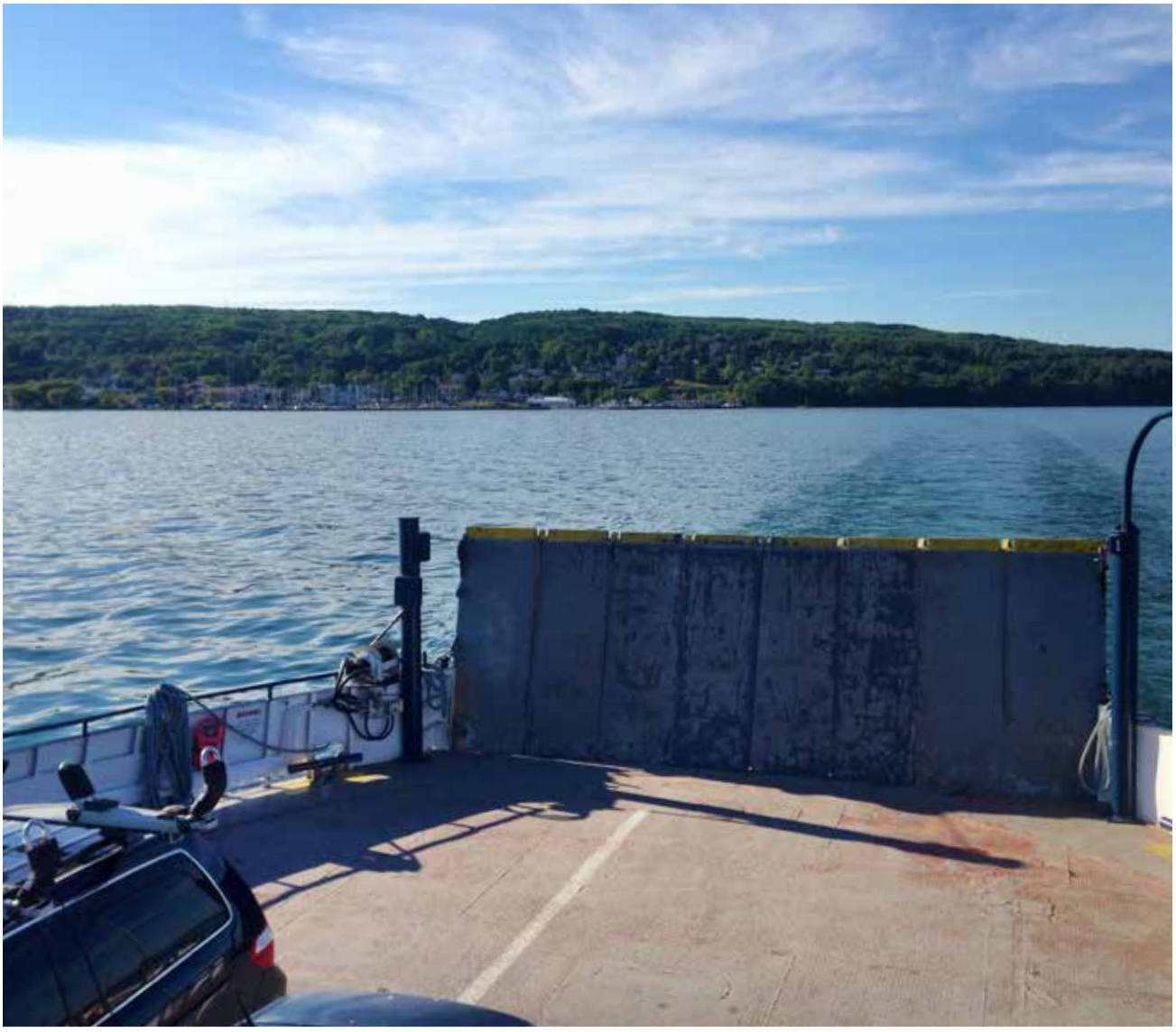
Source: U.S. Energy Information Administration, State Heating Oil Propane Program (2009-2015); Public Service Commission of Wisconsin, Form PSC-AF2 Monthly Finanical and Statistical Reports (1976-2015) http://apps.psc.wi.gov/vs2015/ERF/ERFhome.aspx

Transportation Energy Use

Transportation energy use comprises a spectrum of fuel types including motor gasoline, ethanol, diesel, jet fuel, No. 2 oil distillate, residual fuel oil, liquefied petroleum gas (LPG, commonly known as propane), and natural gas. The sum of all these fuel types support commercial, industrial and individual transportation needs. In 2015, 3,448.37 million gallons of fuel were consumed by Wisconsin for: manufacture and distribution of goods, farming and distribution of produce, commercial air travel, commuting to work, leisure travel, marine sports, and many other applications.

Motor gasoline consumption accounts for 67 percent of all transportation fuel used for a total of 2,317.95 million gallons – much of it used by Wisconsin citizens commuting to and from work. When combined with diesel fuel use – a fuel used for truck transportation and distribution of goods – motor gasoline and diesel fuel accounted for 3,003.92 million gallons, more than 86 percent of all transportation fuel used in 2015.

A partnership between the Wisconsin Office of Energy Innovation and Wisconsin Clean Cities (a stand-alone, non-profit organization that is a designated U.S. Department of Energy's (DOE) Clean Cities coalition serving the state of Wisconsin) provided Wisconsin with innovative transportation fuel programs: Forwarding Wisconsin's Fuel Choice and Wisconsin Smart Fleet. These programs focused on training and education to reduce Wisconsin's petroleum consumption and carbon footprint in an effort to conserve resources, decrease pollution, reduce barriers to expanding alternative fuels markets statewide, and increase overall sustainability in fleets.



▲ The Madeline Island Ferry transports passengers (with their bicycles and cars) across Lake Superior to the towns of LaPointe and Bayfield.

▲ The City of Milwaukee utilizes some heavy-duty vehicles fueled by compressed natural gas (CNG). *Photo courtesy of Wisconsin Clean Cities.*

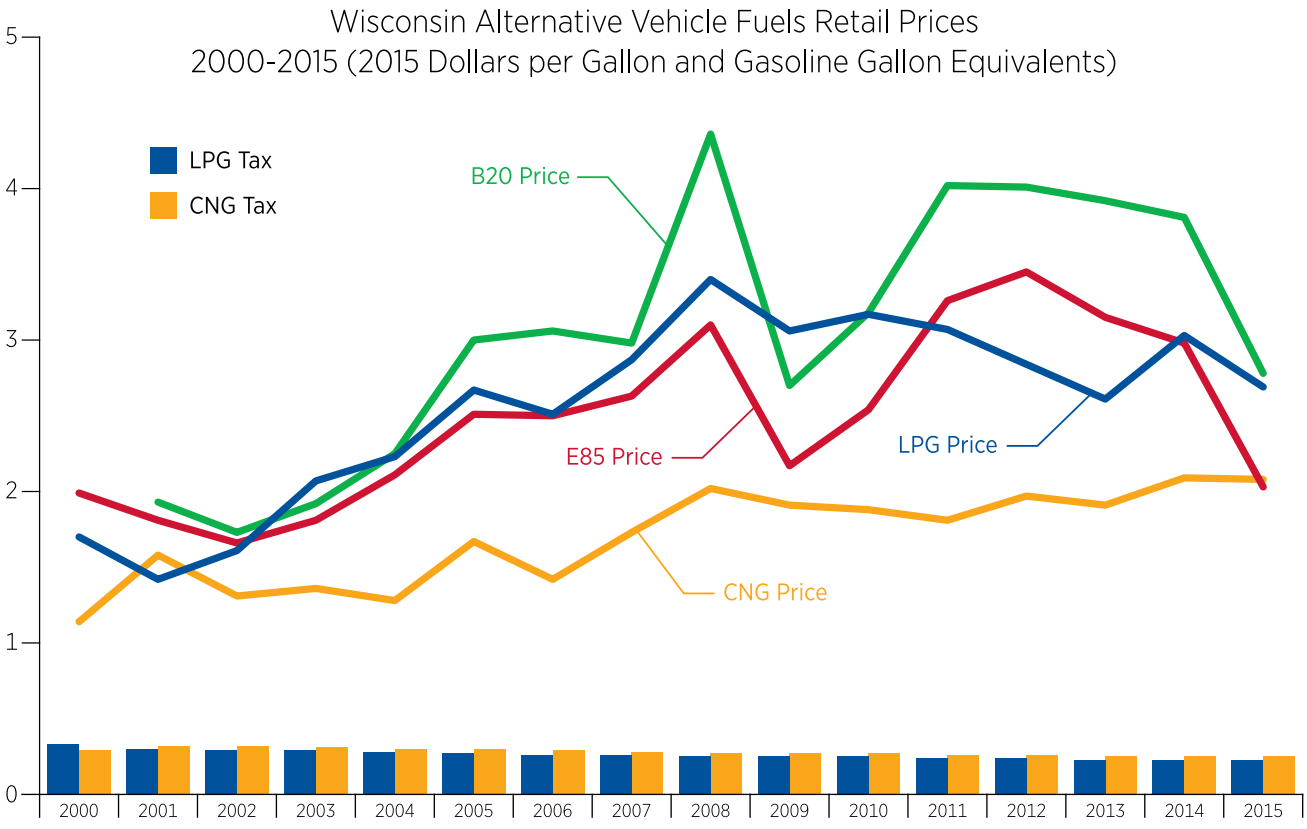
▲ E85, also called "flex fuel"is a gasoline blend containing up to 85% ethanol and is available at some Wisconsin gas stations. *Photo courtesy of Wisconsin Clean Cities.*

Wisconsin Alternative Vehicle Fuels Retail Prices

2000-2015 (Dollars per Gallon and Gasoline Gallon Equivalents)

	Nominal Dollars						2015 Dollars					
Year	B20	LPG	E85	CNG	LPG Tax[a]	CNG Tax[a]	B20	LPG	E85	CNG	LPG Tax[a]	CNG Tax[a]
2000		1.27	1.48	0.85	0.23	0.25		1.70	1.99	1.14	0.33	0.29
2001	1.47	1.09	1.38	1.20	0.23	0.25	1.93	1.42	1.81	1.58	0.30	0.32
2002	1.34	1.24	1.28	1.01	0.23	0.25	1.73	1.61	1.66	1.31	0.29	0.32
2003	1.52	1.63	1.43	1.08	0.23	0.25	1.92	2.07	1.81	1.36	0.29	0.31
2004	1.82	1.81	1.71	1.04	0.23	0.25	2.25	2.23	2.11	1.28	0.28	0.30
2005	2.51	2.24	2.10	1.40	0.23	0.25	3.00	2.67	2.51	1.67	0.27	0.30
2006	2.64	2.16	2.16	1.23	0.23	0.25	3.06	2.51	2.50	1.42	0.26	0.29
2007	2.64	2.54	2.33	1.53	0.23	0.25	2.98	2.87	2.63	1.73	0.26	0.28
2008	3.94	3.07	2.80	1.83	0.23	0.25	4.36	3.40	3.10	2.02	0.25	0.27
2009	2.46	2.78	1.97	1.73	0.23	0.25	2.70	3.06	2.17	1.91	0.25	0.27
2010	2.93	2.91	2.34	1.73	0.23	0.25	3.18	3.17	2.54	1.88	0.25	0.27
2011	3.78	2.88	3.06	1.70	0.23	0.25	4.02	3.07	3.26	1.81	0.24	0.26
2012	3.84	2.71	3.30	1.89	0.23	0.25	4.01	2.84	3.45	1.97	0.24	0.26
2013	3.81	2.53	3.06	1.85	0.23	0.25	3.92	2.61	3.15	1.91	0.23	0.25
2014	3.77	3.00	2.95	2.07	0.23	0.25	3.81	3.03	2.98	2.09	0.23	0.25
2015	2.78	2.69	2.03	2.08	0.23	0.25	2.78	2.69	2.03	2.08	0.23	0.25

B20 = Biodiesel Blend; **LPG** = Liquefied Petroleum Gas; **E85** = Ethanol/Gasoline Blend; **CNG** = Compressed Natural Gas.



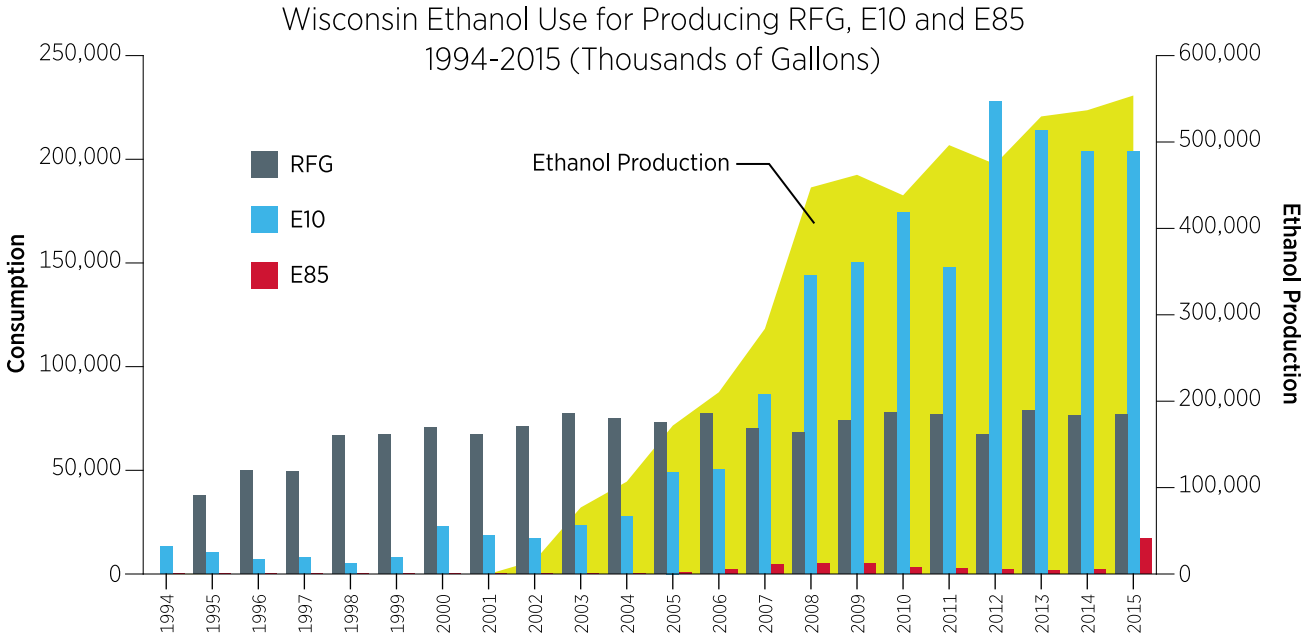
a LPG state tax: $0.226; CNG state tax: $0.247

Source: U.S. Department of Energy, Alternative Fuels Data Center, Clean Cities Alternative Fuel Price Report (2000-2015) https://www.afdc.energy.gov/publications/search/keyword/?q=alternative%20fuel%20price%20report; Wisconsin Division of the American Automobile Association, Wisconsin Average Gas Prices (1993-2015) http://gasprices.aaa.com/?state=WI; Wisconsin Department of Revenue, Motor Vehicle Fuel Tax Statistics Federal Highway Report (1996-2012) https://www.revenue.wi.gov/Pages/ISE/Excise-Fuel-Home.aspx.

Wisconsin Ethanol Use for Producing RFG, E10 and E85

1994-2015 (Thousands of Gallons)

	Production	Consumption			
Year	Ethanol	RFG[a]	E10[b]	E85[c]	Total
1994			13,331	9	13,340
1995		38,048	10,461	17	48,526
1996		49,784	6,973	36	56,793
1997		49,460	8,012	54	57,526
1998		66,571	4,877	58	71,506
1999		67,400	7,937	63	75,400
2000		70,724	23,080	43	93,847
2001		67,449	18,458	32	85,939
2002	15,529	71,152	17,026	48	88,226
2003	76,947	77,302	23,536	86	100,924
2004	106,886	74,816	27,617	106	102,539
2005	171,764	73,046	49,191	723	122,960
2006	210,386	77,614	50,498	2,302	130,414
2007	283,873	69,963	86,472	4,800	161,235
2008	447,388	68,047	143,849	5,100	216,996
2009	462,022	74,142	150,347	5,200	229,689
2010	438,260	77,968	174,399	2,995	255,362
2011	496,366	76,927	147,704	2,447	227,078
2012	474,372	67,286	227,925	2,278	297,489
2013	529,577	78,914	214,110	1,660	294,684
2014	536,762	76,395	203,934	2,220	282,549
2015	553,791	76,775	203,781	16,960	297,516



a Reformulated Gas; Federal mandate (January 1, 1995) to comply with Clean Air Act requires the sale of RFG in six southeastern Wisconsin counties; Ethanol used to provide oxygenate required in RFG.

b A motor fuel blend consisting of 10% ethanol and 90% conventional gasoline (non-RFG).

c A motor fuel consisting of 85% ethanol and 15% conventional gasoline (non-RFG).

Source: Personal communication, Wisconsin E85 distributors; U.S. Department of Energy, Form EIA-782C Monthly Report of Petroleum Products Sold into States for Consumption (1982 – 2015) http://www.eia.gov/petroleum/marketing/prime/;Wisconsin Department of Revenue, Collection of Petroleum Inspection Fees (1996-2006), Fuel Tax Statistical Report (1996-2012), Federal Highway Report (1996-2015) https://www.revenue.wi.gov/Pages/ISE/Excise_Fuel-Home.aspx.

Wisconsin Gasoline and Diesel Fuel Prices

1975-2015 (Dollars per Gallon)

	Nominal Dollars				2015 Dollars			
Year	Regular Unleaded Gasoline (Self-Service)[a]	Regular Reformulated Gasoline	Diesel Fuel[b]	Federal and State Taxes on Gasoline[c]	Regular Unleaded Gasoline (Self-Service)[a]	Regular Reformulated Gasoline	Diesel Fuel[b]	Federal and State Taxes on Gasoline[c]
1975	0.55		0.36	0.11	1.87		1.22	0.37
1976	0.57		0.39	0.11	1.81		1.24	0.35
1977	0.61		0.45	0.11	1.81		1.33	0.33
1978	0.65		0.58	0.11	1.77		1.58	0.30
1979	0.85		0.84	0.11	2.14		2.10	0.28
1980	1.19		1.09	0.12	2.73		2.51	0.28
1981	1.32		1.30	0.15	2.86		2.82	0.32
1982	1.28		1.30	0.17	2.66		2.70	0.35
1983	1.22		1.22	0.22	2.46		2.46	0.43
1984	1.17		1.29	0.25	2.28		2.51	0.48
1985	1.18		1.32	0.25	2.25		2.52	0.48
1986	0.87		1.05	0.26	1.61		1.95	0.49
1987	0.92		1.05	0.28	1.66		1.89	0.50
1988	0.92		1.12	0.30	1.60		1.93	0.52
1989	1.00		1.03	0.30	1.66		1.71	0.50
1990	1.14		1.22	0.31	1.84		1.96	0.50
1991	1.13		1.19	0.36	1.78		1.88	0.57
1992	1.10		1.16	0.36	1.69		1.79	0.56
1993	1.10		1.19	0.38	1.65		1.80	0.58
1994	1.15		1.19	0.42	1.70		1.76	0.61
1995	1.16	1.18	1.19	0.42	1.68	1.72	1.72	0.61
1996	1.26	1.28	1.28	0.42	1.80	1.82	1.83	0.60
1997	1.25	1.28	1.27	0.42	1.77	1.81	1.79	0.60
1998	1.09	1.12	1.12	0.44	1.52	1.56	1.56	0.61
1999	1.18	1.20	1.23	0.44	1.61	1.63	1.67	0.60
2000	1.53	1.56	1.60	0.45	2.04	2.07	2.13	0.59
2001	1.52	1.56	1.54	0.46	1.99	2.04	2.02	0.60
2002	1.42	1.43	1.43	0.46	1.83	1.83	1.84	0.59
2003	1.62	1.63	1.61	0.47	2.03	2.04	2.02	0.59
2004	1.90	1.92	1.88	0.47	2.30	2.32	2.28	0.57
2005	2.32	2.34	2.51	0.48	2.73	2.75	2.95	0.57
2006	2.63	2.64	2.80	0.49	3.01	3.02	3.21	0.56
2007	2.87	2.85	3.02	0.49	3.22	3.20	3.39	0.55
2008	3.29	3.09	3.82	0.49	3.67	3.44	4.26	0.55
2009	2.37	2.38	2.52	0.49	2.61	2.62	2.77	0.54
2010	2.79	2.78	3.03	0.49	3.01	3.00	3.27	0.53
2011	3.53	3.52	3.87	0.49	3.74	3.73	4.10	0.52
2012	3.62	3.62	3.95	0.49	3.78	3.78	4.12	0.51
2013	3.52	3.52	3.95	0.49	3.61	3.60	4.05	0.50
2014	3.36	3.37	3.86	0.49	3.40	3.41	3.91	0.50
2015	2.41	2.45	2.69	0.49	2.41	2.45	2.69	0.49

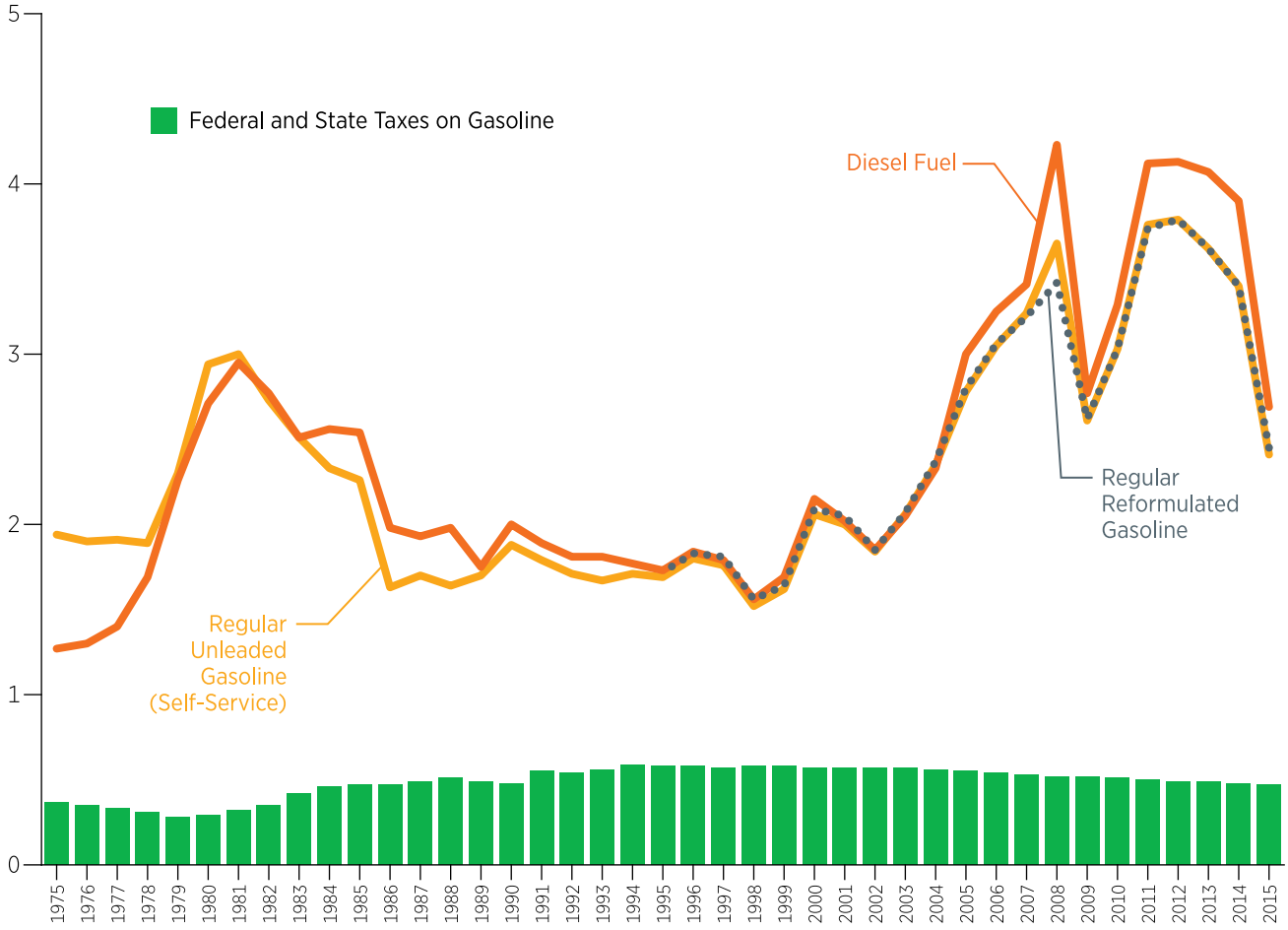
a More than 99 percent of the gasoline sold in Wisconsin has been unleaded since 1991. 1970-1978 full service price, 1979-present self-service price.

b 1970-1988 full service price, 1989-present self-service price.

c State petroleum inspection fee s. 168.12(1), Wis. Stats.: $0.02. Federal retail gasoline tax: $0.184, Wisconsin state retail gasoline tax: $0.309.

Source: Wisconsin Division of the American Automobile Association, Wisconsin Average Gas Prices (1970-2015) http://gasprices.aaa.com/?state=WI; Wisconsin Department of Revenue; Fuel Tax Statistical Report (1996-2012) https://www.revenue.wi.gov/Pages/ISE/Excise_Fuel-Home.aspx.

Wisconsin Gasoline and Diesel Fuel Prices
1975-2015 (2015 Dollars per Gallon)



Retail Sales of Conventional Gasoline in Wisconsin, Midwest, and U.S.

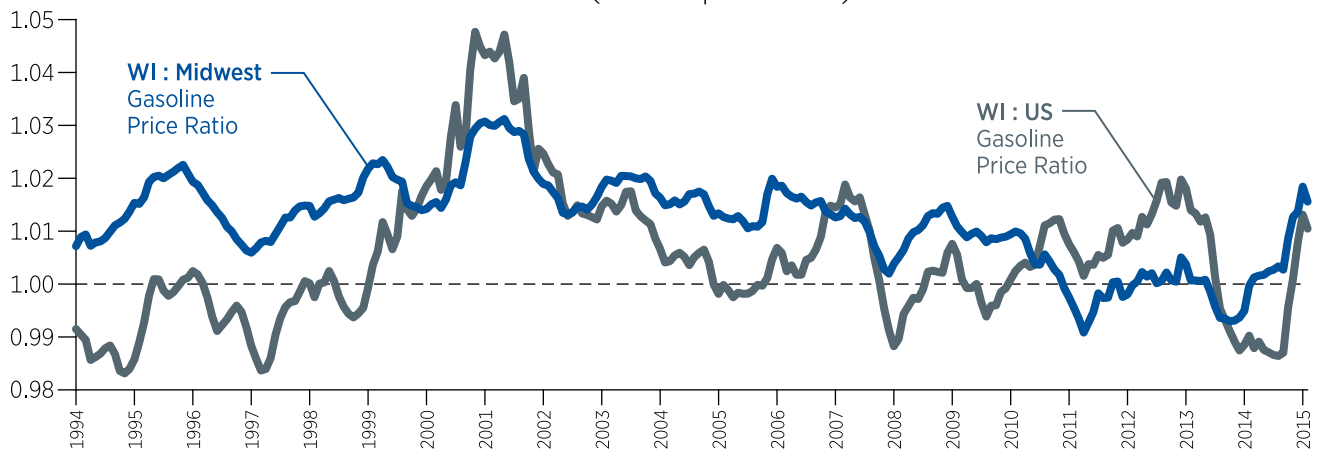
1994-2015 (Dollars per Gallon)

Year	Wisconsin	Midwest[a]	U.S.
1994	0.72	0.71	0.72
1995	0.74	0.73	0.75
1996	0.83	0.82	0.83
1997	0.81	0.80	0.82
1998	0.64	0.64	0.65
1999	0.74	0.72	0.74
2000	1.09	1.07	1.07
2001	1.04	1.01	0.99
2002	0.94	0.93	0.92
2003	1.12	1.10	1.11
2004	1.40	1.37	1.39
2005	1.80	1.78	1.80
2006	2.10	2.06	2.08
2007	2.35	2.32	2.31
2008	2.72	2.71	2.75
2009	1.87	1.85	1.86
2010	2.29	2.27	2.29
2011	3.04	3.05	3.02
2012	3.13	3.13	3.10
2013	3.03	3.03	2.99
2014	2.87	2.87	2.89
2015	1.92	1.89	1.89

Note: Monthly price averages; dataset available on request.

Wisconsin Gasoline Prices Relative to the U.S. and Midwest

1994-2015 (Dollars per Gallon)



Data are presented in a 12-point moving average. Index of 1 used to compare Wisconsin prices against Midwest and U.S. prices; Values ±1 indicate higher or lower price relative to U.S. or Midwest average, respectively.

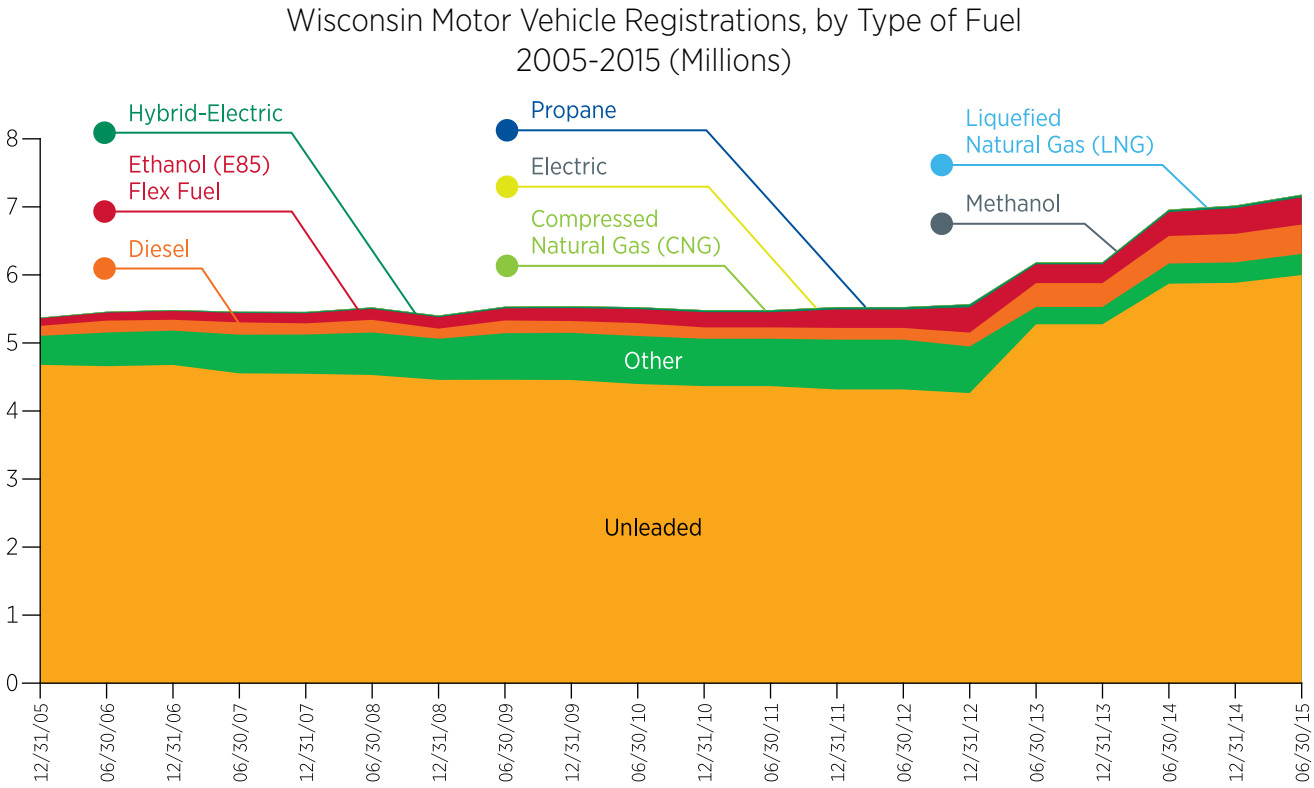
a IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, OK, SD, TN, WI.

Source: Wisconsin Division of the American Automobile Association, Wisconsin Average Gas Prices (1993-2015) http://gasprices.aaa.com/?state=WI; U.S. Energy Information Administration, U.S. Conventional Gasoline Retail Sales by All Sellers (Dollars per Gallon) (1994 – 2011) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPM0U_PTA_NUS_DPG&f=M, Midwest (PADD 2) Conventional Gasoline Retail Sales by All Sellers (Dollars per Gallon) (1994 – 2011) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPM0U_PTA_R20_DPG&f=M, Wisconsin Conventional Gasoline Retail Sales by All Sellers (Dollars per Gallon) (1994 – 2011) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMA_EPM0U_PTA_SWI_DPG&f=M, Weekly Midwest Regular Conventional Retail Gasoline Prices (Dollars per Gallon) (2011 – 2015) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMM_EPMRU_PTE_R20_DPG&f=W, Weekly U.S. Regular Conventional Retail Gasoline Prices (Dollars per Gallon) (2011 – 2015) https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMM_EPMRU_PTE_NUS_DPG&f=W.

Wisconsin Motor Vehicle Registrations, by Type of Fuel

2005-2015

As of	Unleaded	Diesel	Ethanol (E85) Flex Fuel	Hybrid-Electric	Propane	Compressed Natural Gas (CNG)	Electric	Methanol	Liquefied Natural Gas (LNG)	Other[a]	Total
12/31/05	4,678,223	146,406	109,848	5,862	115	4,899	8	1	0	426,438	5,371,800
06/30/06	4,658,199	175,343	117,703	7,645	124	4,902	6	1	0	494,727	5,458,650
12/31/06	4,676,626	159,327	128,563	9,891	95	4,922	7	1	0	504,622	5,484,054
06/30/07	4,553,230	180,532	138,326	12,807	112	4,820	9	0	0	568,690	5,458,526
12/31/07	4,546,665	164,568	148,619	14,329	83	4,852	12	0	0	576,857	5,455,985
06/30/08	4,529,036	185,843	160,757	17,034	103	4,824	22	0	0	624,776	5,522,395
12/31/08	4,456,969	149,054	169,073	18,145	71	4,762	27	0	0	604,464	5,402,565
06/30/09	4,458,640	187,312	178,061	19,597	91	4,722	29	0	0	684,501	5,532,953
12/31/09	4,455,171	173,831	190,198	21,938	81	4,664	32	0	0	693,190	5,539,105
06/30/10	4,396,147	189,625	205,419	23,608	87	4,621	32	0	0	706,255	5,525,794
12/31/10	4,365,757	166,473	223,564	25,758	60	4,526	33	0	0	696,347	5,482,518
06/30/11											
12/31/11	4,316,926	172,191	271,732	29,871	53	4,348	51	1	0	731,625	5,526,798
06/30/12											
12/31/12	4,263,037	203,773	372,660	40,143	47	4,156	234	2	0	685,045	5,569,097
06/30/13	5,274,566	350,580	277,096	22,306	177	4,915	203	0	0	254,268	6,184,111
12/31/13											
06/30/14	5,870,789	404,565	351,581	29,865	186	5,719	309	0	2	296,675	6,959,691
12/31/14	5,883,765	419,550	378,210	31,401	184	5,770	269	0	2	300,536	7,019,687
06/30/15	5,997,946	431,255	400,018	32,832	174	5,835	316	0	2	311,144	7,179,522



a Fuel type left blank, coded as exempt or as a miscellaneous fuel type.

Source: Personal communication, Wisconsin Department of Transportation, Unpublished data (2005-2013); Wisconsin Department of Transportation, *Lists of Vehicle Information* (2013-2015) http://wisconsindot.gov/Pages/about-wisdot/newsroom/statistics/fact-fig/fact-fig.aspx.

Wisconsin Transportation Energy Use, by Type of Fuel

1975-2015 (Millions of Gallons)

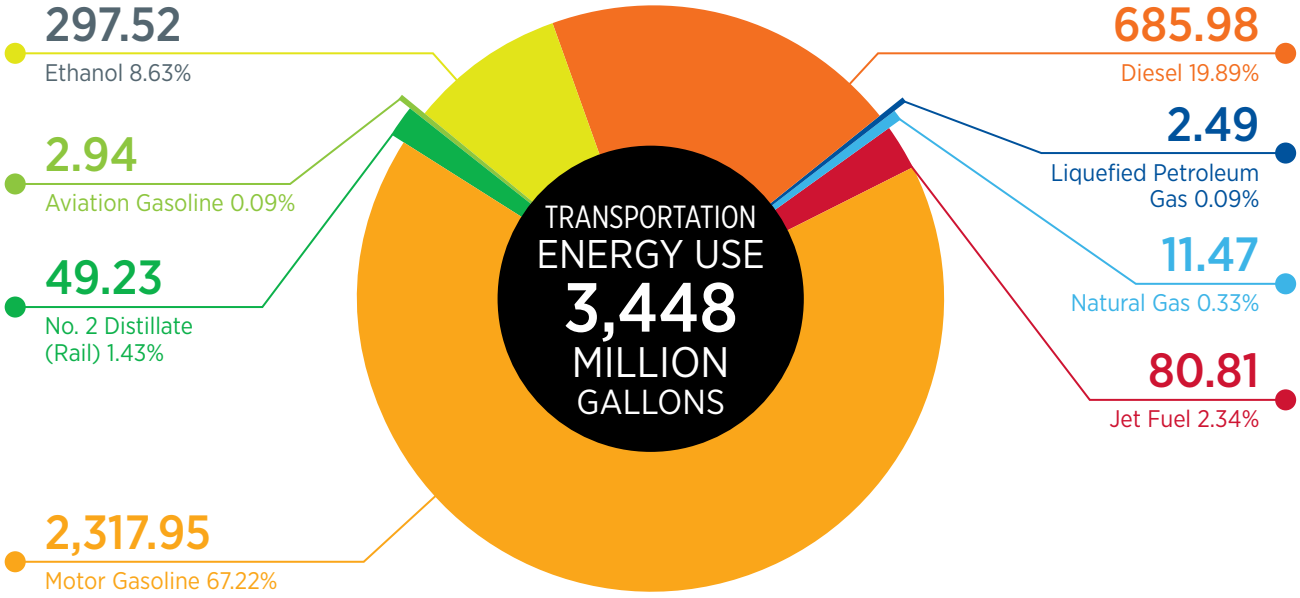
Year	Motor Gasoline[a]	Diesel	Aviation Gasoline	Jet Fuel	No. 2 Distillate (Rail)	Residual (Vessel)	Liquefied Petroleum Gas	Total Petroleum	Ethanol	Natural Gas[b]	Total
1975	2,142.80	205.10	6.70	72.40	36.60	14.10		2,477.70			2,477.70
1976	2,304.80	311.49	8.00	85.93	38.20	18.70		2,767.11			2,767.11
1977	2,131.20	307.16	7.20	81.48	36.80	17.10		2,580.94			2,580.94
1978	2,050.40	310.77	6.40	72.59	41.20	23.70		2,505.06			2,505.06
1979	1,985.46	303.89	5.50	69.27	62.70	19.40		2,446.21			2,446.21
1980	2,130.70	307.10	7.00	81.40	44.80	14.80		2,585.80			2,585.80
1981	2,050.20	310.50	6.30	72.50	43.90	9.00		2,492.40			2,492.40
1982	1,985.46	304.68	5.50	69.27	21.91	3.83		2,390.65	0.27		2,390.92
1983	1,980.50	330.50	5.14	58.50	27.49	7.22		2,409.34	0.10		2,409.45
1984	2,006.79	352.42	5.02	57.18	27.32	9.77		2,458.51	0.20		2,458.71
1985	2,009.73	356.89	4.54	62.17	27.09	7.39		2,467.81	1.51		2,469.32
1986	2,064.66	371.49	4.71	58.86	27.27	7.40		2,534.38	1.53		2,535.91
1987	2,088.20	388.53	5.59	60.08	27.43	8.57		2,578.39	1.02		2,579.42
1988	2,139.95	446.51	5.10	68.01	26.20	9.87		2,695.64	2.02		2,697.66
1989	2,136.63	455.66	5.41	79.12	26.20	8.52		2,711.54	4.76		2,716.31
1990	2,124.45	471.07	5.01	81.63	28.61	9.04		2,719.81	8.30		2,728.10
1991	2,112.01	494.80	4.92	87.86	29.00	7.72		2,736.31	20.50		2,756.80
1992	2,174.39	518.72	4.93	85.85	28.50	7.83		2,820.22	16.00		2,836.23
1993	2,231.26	552.15	5.28	80.43	31.39	6.78		2,907.29	12.71		2,920.00
1994	2,238.97	587.37	5.48	82.99	34.81	6.78	3.73	2,960.14	13.34		2,973.48
1995	2,254.07	612.47	5.59	78.56	35.07	6.88	6.11	2,998.75	48.53		3,047.28
1996	2,307.77	624.60	5.70	82.00	38.44	3.66	6.00	3,068.18	56.79		3,124.97
1997	2,345.45	657.64	5.83	83.97	34.09	0.04	5.82	3,132.84	57.53		3,190.37
1998	2,398.43	681.04	5.90	85.02	31.91	0.50	5.66	3,208.46	71.51		3,279.97
1999	2,461.52	696.29	6.05	87.40	37.00	0.00	5.11	3,293.37	75.40		3,368.77
2000	2,419.37	691.24	6.00	87.00	35.90	0.00	5.25	3,244.76	93.85		3,338.61
2001	2,438.59	687.70	5.90	85.00	35.17	0.00	4.57	3,256.94	85.94		3,342.88
2002	2,523.03	698.92	4.85	88.19	36.93	0.00	3.96	3,355.88	88.23		3,444.11
2003	2,538.70	692.06	4.33	86.13	33.66	0.00	3.82	3,358.69	100.92		3,459.61
2004	2,545.59	738.55	4.18	92.53	35.70	0.00	3.65	3,420.20	102.50		3,522.70
2005	2,439.19	672.69	4.15	105.68	35.14	0.00	3.01	3,259.87	122.96	0.21	3,383.03
2006	2,364.13	702.56	3.52	102.94	37.16	0.00	3.22	3,213.52	130.41	0.22	3,344.15
2007	2,401.74	691.34	2.85	94.55	43.22	0.00	2.33	3,236.04	161.24	0.21	3,397.48
2008	2,277.30	693.90	2.61	102.41	34.68	0.00	2.38	3,113.28	217.00	0.17	3,330.45
2009	2,252.30	600.38	1.85	104.71	30.13	0.00	2.20	2,991.56	229.69	0.18	3,221.43
2010	2,307.56	658.81	2.27	96.89	33.31	0.00	2.26	3,101.11	255.36	0.30	3,356.77
2011	2,285.50	657.95	2.48	84.04	35.79	0.00	1.58	3,067.34	227.08	0.55	3,294.97
2012	2,186.93	666.88	2.39	62.79	50.18	0.00	1.63	2,970.81	297.49	1.51	3,269.81
2013	2,156.01	632.74	2.18	65.90	43.70	0.00	1.97	2,902.50	294.68	3.88	3,201.06
2014	2,309.86	693.35	2.52	82.15	52.06	0.00	2.30	3,142.25	282.55	8.62	3,433.42
2015	2,317.95	685.98	2.94	80.81	49.23	0.00	2.49	3,139.39	297.52	11.47	3,448.37

a Does not include ethanol.

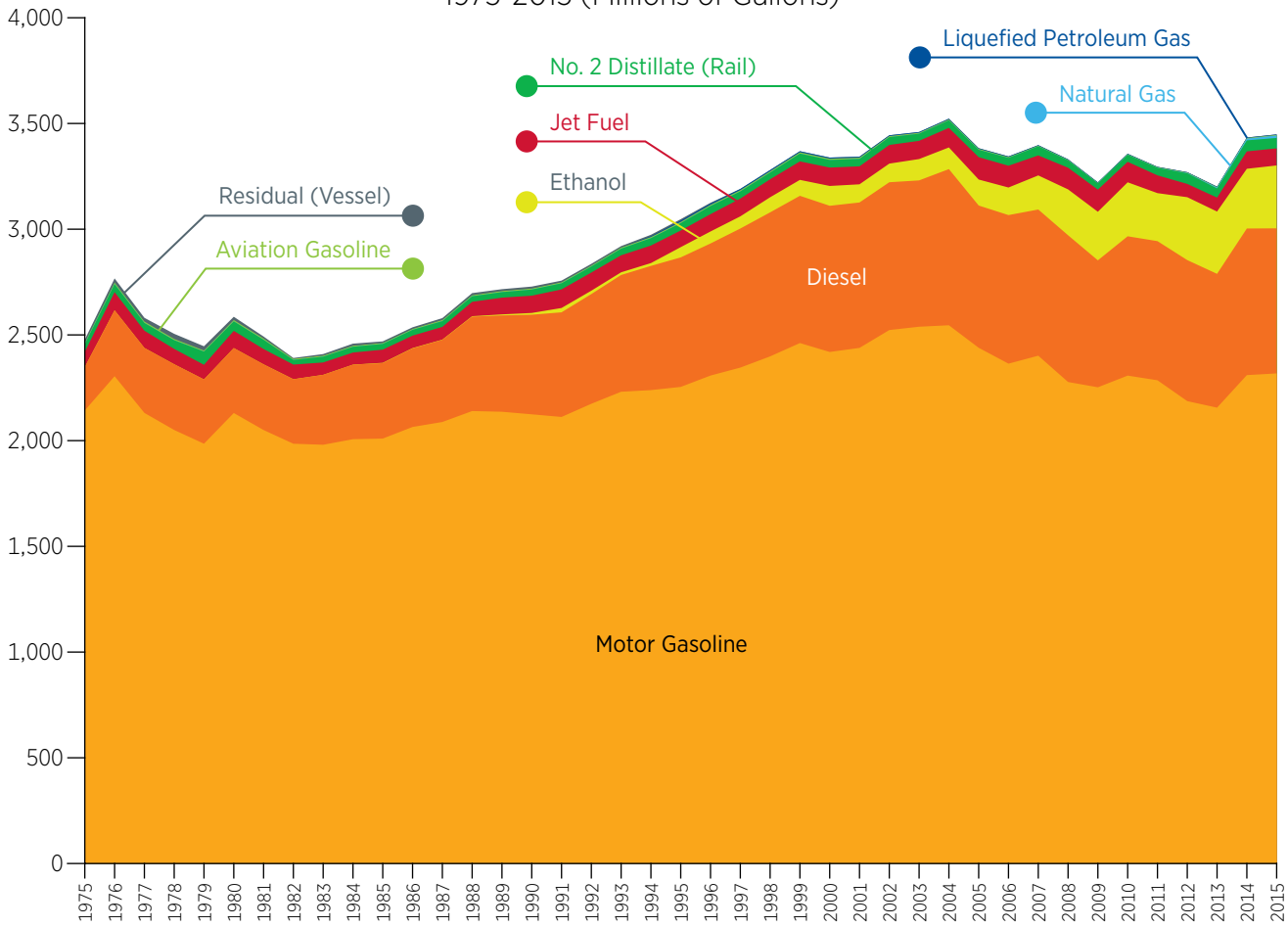
b Compressed natural gas shown in gasoline gallon equivalents (GGE).

Source: Personal communication, airport fixed base operators (2000-2009), railroad companies (2000-2015); U.S. Department of Energy, Form EIA-782C Monthly Report of Petroleum Products Sold into States for Consumption (1982 – 2015) (1983-2012), Petroleum Supply Annual (1982-2012), State Energy Data System, Transporation Sector Energy Consumption Estimates (1970-2015) https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_use/tra/use_tra_WI.html&sid=WI;Wisconsin Department of Commerce, Bureau of Petroleum Inspection, Report on Petroleum Products Inspected and Delivered to Wisconsin (1970-1995) http://datcp.wi.gov/Consumer/Weights_and_Measures/Liquefied_Petroleum_Gas/index.aspx; Wisconsin Department of Revenue, Motor Vehicle Fuel Tax Statistics Federal Highway Report (1970-2015) https://www.revenue.wi.gov/Pages/ISE/Excise_Fuel-Home.aspx, Gasohol Report (1970-2015) Unpublished.

Wisconsin Transportation Energy Use, by Type of Fuel
2015 (Millions of Gallons and Percent of Total)



Wisconsin Transportation Energy Use, by Type of Fuel
1975-2015 (Millions of Gallons)



Wisconsin Transportation Energy Use, by Type of Fuel

1975-2015 (Trillions of Btu)

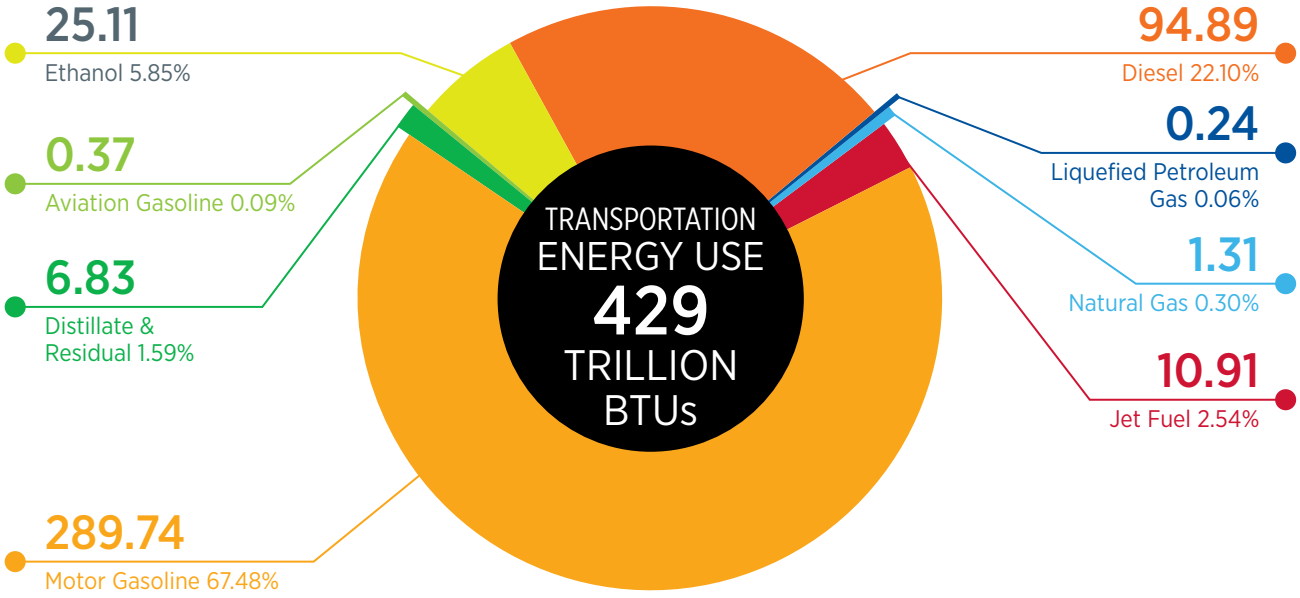
Year	Motor Gasoline[a]	Diesel	Aviation Gasoline	Jet Fuel	Distillate & Residual	Liquefied Petroleum Gas	Total Petroleum	Ethanol	Natural Gas[b]	Total
1975	267.80	28.40	0.80	9.80	7.20		314.00			314.00
1976	280.70	33.30	0.90	10.00	8.10		333.00			333.00
1977	289.20	36.20	0.90	10.40	7.60		344.30			344.30
1978	299.00	40.10	1.00	10.50	9.20		359.80			359.80
1979	288.10	43.20	1.00	11.60	11.50		355.40			355.40
1980	266.40	42.60	0.90	11.00	8.30		329.20			329.20
1981	256.30	43.10	0.80	9.80	7.40		317.40			317.40
1982	248.18	42.15	0.69	9.35	3.40		303.95	0.0230		303.97
1983	247.56	45.72	0.64	7.90	4.06		306.69	0.0088		306.70
1984	250.85	48.73	0.63	7.72	4.06		313.16	0.0166		313.18
1985	251.22	49.37	0.57	8.39	4.06		314.38	0.1272		314.51
1986	258.08	51.39	0.59	7.95	4.07		322.69	0.1292		322.82
1987	261.02	53.74	0.70	8.11	4.08		327.66	0.0864		327.75
1988	267.49	61.76	0.64	9.18	3.90		343.00	0.1703		343.17
1989	267.08	63.03	0.68	10.68	3.88		345.38	0.4019		345.78
1990	265.56	65.16	0.63	11.02	4.22		346.66	0.7002		347.36
1991	264.00	68.42	0.62	11.86	4.30		349.20	1.73		350.93
1992	271.80	71.72	0.62	11.59	4.14		359.92	1.35		361.27
1993	278.91	76.35	0.66	10.86	4.55		371.38	1.07		372.45
1994	279.87	81.23	0.69	11.20	5.02	0.36	378.43	1.13		379.56
1995	281.76	84.72	0.70	10.61	5.06	0.58	383.56	4.10		387.66
1996	288.47	86.40	0.71	11.07	5.51	0.57	392.94	4.79		397.73
1997	293.18	90.97	0.73	11.34	4.73	0.56	401.58	4.86		406.44
1998	299.80	94.21	0.74	11.48	4.43	0.54	411.30	6.04		417.34
1999	307.69	96.32	0.76	11.80	5.13	0.49	422.24	6.36		428.60
2000	302.42	95.62	0.75	11.75	4.98	0.50	416.06	7.92		423.98
2001	304.82	95.13	0.74	11.48	4.88	0.44	417.50	7.25		424.76
2002	315.38	96.68	0.61	11.91	5.12	0.38	430.10	7.45		437.54
2003	317.34	95.73	0.54	11.63	4.67	0.36	430.29	8.52		438.80
2004	318.20	102.16	0.52	12.49	4.95	0.35	438.70	8.65		447.35
2005	304.90	93.05	0.52	14.27	4.87	0.29	418.49	10.38	0.02	428.89
2006	295.52	97.18	0.44	13.90	5.15	0.31	413.28	11.01	0.02	424.31
2007	300.22	95.63	0.36	12.76	5.99	0.22	415.40	13.61	0.02	429.03
2008	284.66	95.99	0.33	13.82	4.81	0.23	399.87	18.31	0.02	418.21
2009	281.54	83.05	0.23	14.14	4.18	0.21	383.34	19.39	0.02	402.75
2010	288.44	91.13	0.28	13.08	4.62	0.22	397.78	21.55	0.03	419.36
2011	285.69	91.01	0.31	11.35	4.96	0.15	393.47	19.17	0.06	412.70
2012	273.37	92.25	0.30	8.48	6.96	0.16	381.51	25.11	0.17	406.78
2013	269.50	87.53	0.27	8.90	6.06	0.19	372.45	24.87	0.44	397.75
2014	288.73	95.91	0.32	11.09	7.22	0.22	403.49	23.85	0.98	428.31
2015	289.74	94.89	0.37	10.91	6.83	0.24	402.97	25.11	1.31	429.39

a Does not include ethanol.

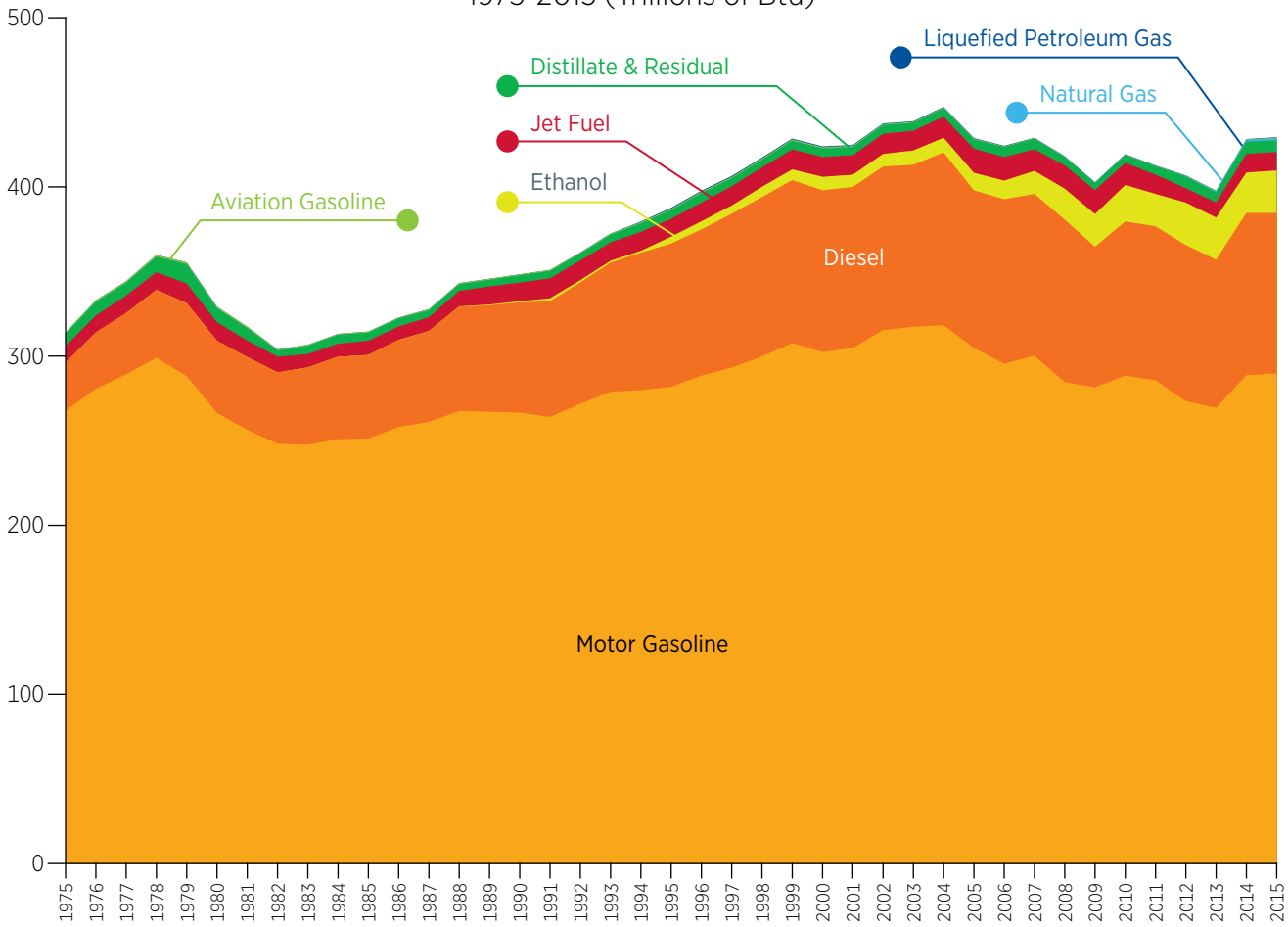
b Includes Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) used for vehicle fuel.

Source: Personal communication, airport fixed base operators (2000-2009), railroad companies (2000-2015); U.S. Department of Energy, Form EIA-782C Monthly Report of Petroleum Products Sold into States for Consumption (1982 – 2015) (1983-2012), Petroleum Supply Annual (1982-2012), State Energy Data System, Transporation Sector Energy Consumption Estimates (1970-2015) https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_use/tra/use_tra_WI.html&sid=WI;Wisconsin Department of Commerce, Bureau of Petroleum Inspection, Report on Petroleum Products Inspected and Delivered to Wisconsin (1970-1995) http://datcp.wi.gov/Consumer/Weights_and_Measures/Liquefied_Petroleum_Gas/index.aspx; Wisconsin Department of Revenue, Motor Vehicle Fuel Tax Statistics Federal Highway Report (1970-2015) https://www.revenue.wi.gov/Pages/ISE/Excise_Fuel-Home.aspx, Gasohol Report (1970-2015) Unpublished.

Wisconsin Transportation Energy Use, by Type of Fuel
2015 (Trillions of Btu and Percent of Total)



Wisconsin Transportation Energy Use, by Type of Fuel
1975-2015 (Trillions of Btu)



Wisconsin Population-Weighted Heating Degree Days, by Zone and Month

2013-2015

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State[a]
2013												
January	1,565	1,613	1,521	1,615	1,525	1,414	1,516	1,427	1,402	1,339	1,256	1,375
February	1,425	1,491	1,390	1,428	1,378	1,278	1,316	1,339	1,264	1,224	1,140	1,244
March	1,322	1,417	1,310	1,332	1,270	1,188	1,269	1,278	1,191	1,182	1,075	1,176
April	937	947	840	878	846	716	801	798	678	629	641	706
May	526	389	350	366	300	295	308	259	218	216	301	289
June	184	176	131	83	86	72	63	88	48	52	87	79
July	83	79	56	33	35	22	26	22	18	18	14	22
August	44	116	72	24	24	18	12	30	9	12	8	17
September	186	267	226	143	164	171	129	150	116	127	108	137
October	583	665	584	578	566	487	551	553	446	461	410	477
November	1,013	1,117	1,023	1,091	1,042	913	1,027	981	967	901	835	918
December	1,742	1,772	1,665	1,791	1,652	1,514	1,665	1,579	1,543	1,466	1,358	1,501
2013 Total	**9,610**	**10,049**	**9,168**	**9,362**	**8,888**	**8,088**	**8,683**	**8,504**	**7,900**	**7,627**	**7,233**	**7,941**
2014												
January	1,885	1,947	1,850	1,971	1,843	1,738	1,831	1,738	1,723	1,657	1,570	1,694
February	1,599	1,694	1,646	1,722	1,659	1,588	1,651	1,594	1,564	1,470	1,353	1,502
March	1,432	1,527	1,419	1,435	1,446	1,294	1,284	1,303	1,238	1,148	1,110	1,223
April	910	916	813	839	754	696	710	701	596	580	324	866
May	465	392	339	335	304	269	256	289	250	208	278	271
June	185	92	65	55	20	31	25	12	10	9	74	44
July	59	120	72	35	27	15	18	47	29	13	21	24
August	48	82	53	12	15	14	5	9	2	4	5	10
September	225	302	257	220	209	197	187	191	170	166	149	178
October	624	676	605	605	594	520	566	572	517	460	427	496
November	1,217	1,298	1,201	1,271	1,198	1,091	1,196	1,196	1,112	1,041	969	1,073
December	1,293	1,413	1,319	1,332	1,257	1,208	1,280	1,280	1,169	1,128	1,036	1,155
2014 Total	**9,942**	**10,459**	**9,639**	**9,832**	**9,326**	**8,661**	**9,009**	**8,932**	**8,380**	**7,884**	**7,316**	**8,536**
2015												
January	1,574	1,698	1,588	1,618	1,576	1,462	1,513	1,465	1,451	1,392	1,311	1,420
February	1,630	1,758	1,652	1,658	1,619	1,531	1,588	1,562	1,550	1,507	1,414	1,509
March	1,080	1,188	1,086	1,077	1,053	968	990	985	1,019	935	931	970
April	682	725	649	588	571	564	521	556	480	494	568	554
May	414	344	286	287	240	210	242	211	219	190	264	240
June	136	148	105	50	51	53	28	49	41	37	102	69
July	46	67	44	27	22	19	16	29	21	16	28	24
August	73	110	76	51	52	31	39	45	27	16	20	31
September	135	152	113	105	85	68	93	82	58	66	46	68
October	579	611	546	552	518	457	474	463	425	410	338	420
November	805	860	788	791	760	697	740	726	727	683	607	682
December	1,102	1,128	1,040	1,123	1,046	938	1,054	982	952	921	839	932
2015 Total	**8,256**	**8,789**	**7,973**	**7,927**	**7,593**	**6,998**	**7,298**	**7,155**	**6,970**	**6,667**	**6,468**	**6,919**

a Population weighted.

Source: National Oceanographic and Atmospheric Administration, National Weather Service (1970-2015) http://www.nws.noaa.gov/climate/; Personal communication, Wisconsin State Climatology Office (1975 – 2015); Wisconsin Department of Administration, Heating, Cooling and Growing Degree Days (1970-2015) http://degreedays.wi.gov/.

Wisconsin Population-Weighted Cooling Degree Days, by Zone and Month

2013-2015

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State[a]
2013												
March	0	0	0	0	0	0	0	0	0	0	0	0
April	0	0	3	0	0	5	3	0	0	8	3	4
May	7	14	25	23	21	33	29	33	50	45	36	35
June	42	37	73	75	71	105	90	87	123	137	99	101
July	130	128	171	181	187	196	242	205	217	231	241	220
August	114	71	110	142	140	137	202	151	185	192	198	174
September	30	16	38	55	57	55	87	66	103	94	101	82
October	0	0	1	1	0	2	0	0	8	2	10	5
2013 Total	**323**	**266**	**421**	**477**	**476**	**533**	**653**	**542**	**686**	**709**	**688**	**621**
2014												
March	0	0	0	0	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0	0	0	0	0
May	17	12	15	29	21	16	35	18	44	51	18	26
June	33	63	89	92	116	106	134	136	150	182	90	116
July	83	48	79	117	86	99	138	79	97	143	127	117
August	46	28	82	111	101	122	171	127	168	200	166	152
September	9	2	14	10	21	19	22	37	39	44	59	38
October	0	0	0	0	0	0	0	0	0	0	4	1
2014 Total	**188**	**153**	**279**	**359**	**345**	**362**	**500**	**397**	**498**	**620**	**464**	**450**
2015												
March	0	0	0	0	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0	0	0	0	0
May	0	8	22	13	15	28	18	35	24	50	26	28
June	19	6	40	51	55	67	82	52	85	111	73	74
July	150	103	147	173	143	176	180	165	168	200	208	187
August	96	51	95	97	107	132	122	139	120	168	180	149
September	84	64	93	104	90	113	116	112	137	136	133	122
October	6	0	1	2	1	2	2	0	4	1	2	2
2015 Total	**355**	**232**	**398**	**440**	**411**	**518**	**520**	**503**	**538**	**666**	**622**	**562**

a Population weighted.

Source: National Oceanographic and Atmospheric Administration, National Weather Service (1970-2015) http://www.nws.noaa.gov/climate/; Personal communication, Wisconsin State Climatology Office (1975 – 2015); Wisconsin Department of Administration, Heating, Cooling and Growing Degree Days (1970-2015) http://degreedays.wi.gov/.

Wisconsin Population, Number of Households and Total and Per Capita Personal Income

1975-2015

Year	GDP Deflator	Population (Thousands)	Households (Thousands)	Gross State Product (Million 2015 Dollars)	Personal Income (Nominal Dollars)			Personal Income (2015 Dollars)		
					Total (Million Dollars)	Dollars per Capita	Dollars per Household	Total (Million Dollars)	Dollars per Capita	Dollars per Household
1975	31.36	4,570	1,487	113,625.81	27,780.26	6,079.34	18,684.60	98,716.08	21,323.36	65,536.43
1976	33.08	4,585	1,515	123,130.96	30,473.08	6,646.71	20,110.26	102,647.26	22,099.63	66,864.58
1977	35.14	4,613	1,546	127,374.57	34,051.66	7,381.20	22,025.65	108,001.22	23,108.11	68,955.12
1978	37.60	4,632	1,588	132,876.59	38,047.47	8,214.15	23,959.37	112,758.97	24,028.97	70,088.70
1979	40.71	4,666	1,624	135,387.36	42,628.34	9,136.12	26,252.21	116,703.19	24,688.44	70,941.04
1980	44.38	4,712	1,652	131,121.40	47,052.95	9,985.68	28,477.25	118,158.68	24,751.62	70,586.90
1981	48.52	4,726	1,668	130,338.97	51,320.99	10,858.49	30,769.83	117,868.95	24,616.22	69,755.23
1982	51.53	4,729	1,678	126,984.26	54,102.81	11,440.98	32,244.36	117,001.91	24,422.14	68,829.45
1983	53.56	4,721	1,689	129,723.57	56,952.26	12,062.48	33,713.53	118,487.24	24,771.07	69,232.85
1984	55.47	4,736	1,705	138,847.04	62,644.45	13,228.49	36,743.77	125,861.58	26,234.22	72,868.80
1985	57.24	4,748	1,720	141,859.53	66,041.72	13,910.06	38,387.42	128,574.68	26,730.90	73,768.91
1986	58.40	4,756	1,737	146,594.30	69,705.47	14,657.48	40,120.57	133,021.87	27,609.77	75,573.69
1987	59.88	4,778	1,757	150,643.46	73,574.03	15,398.75	41,872.42	136,913.02	28,284.79	76,912.27
1988	61.98	4,822	1,778	159,048.54	78,143.06	16,204.22	43,949.98	140,497.24	28,757.61	77,997.99
1989	64.39	4,857	1,797	162,654.46	85,276.23	17,558.95	47,454.77	147,583.10	29,995.39	81,065.47
1990	66.77	4,905	1,822	165,120.94	90,143.24	18,379.47	49,472.17	150,440.31	30,276.90	81,496.58
1991	69.00	4,964	1,844	167,038.76	93,632.28	18,860.96	50,771.22	151,231.40	30,069.59	80,943.38
1992	70.57	5,025	1,865	176,094.16	101,190.91	20,135.90	54,252.04	159,796.87	31,386.67	84,564.92
1993	72.25	5,085	1,891	182,738.17	106,442.54	20,933.11	56,289.02	164,183.31	31,870.94	85,700.80
1994	73.79	5,134	1,919	192,960.92	113,017.54	22,014.93	58,909.32	170,690.52	32,819.21	87,820.31
1995	75.32	5,185	1,946	197,598.12	118,778.60	22,908.84	61,027.90	175,727.82	33,454.37	89,120.60
1996	76.70	5,230	1,972	205,720.07	125,662.96	24,027.40	63,736.54	182,580.41	34,458.87	91,407.69
1997	78.01	5,266	1,998	219,051.15	133,284.39	25,309.34	66,695.55	190,396.00	35,686.73	94,042.20
1998	78.86	5,298	2,025	228,523.18	142,917.96	26,977.50	70,594.20	201,963.83	37,630.15	98,469.83
1999	80.07	5,324	2,054	238,528.54	149,267.18	28,038.42	72,675.00	207,757.90	38,520.70	99,844.84
2000	81.89	5,374	2,085	245,026.06	159,511.07	29,682.00	76,518.79	217,076.01	39,871.41	102,786.59
2001	83.75	5,407	2,116	248,524.47	167,125.09	30,909.97	78,992.81	222,369.76	40,595.70	103,745.44
2002	85.04	5,445	2,147	254,009.04	171,731.78	31,538.42	79,975.68	225,045.69	40,795.03	103,448.78
2003	86.74	5,479	2,171	259,695.83	175,771.21	32,079.70	80,966.98	225,834.63	40,683.71	102,682.89
2004	89.12	5,514	2,197	266,590.69	183,318.38	33,245.83	83,425.13	229,229.21	41,034.44	102,969.41
2005	91.99	5,546	2,220	270,637.63	189,528.09	34,172.81	85,389.51	229,605.27	40,863.58	102,108.10
2006	94.81	5,578	2,230	273,547.82	201,536.16	36,132.78	90,372.53	236,874.87	41,919.37	104,845.51
2007	97.34	5,611	2,242	275,322.53	210,810.97	37,572.52	94,044.99	241,353.31	42,459.78	106,277.93
2008	99.25	5,641	2,250	271,039.07	219,283.41	38,873.17	97,475.32	246,223.64	43,084.53	108,035.39
2009	100.00	5,669	2,272	269,489.72	215,498.90	38,011.79	94,838.43	240,150.03	41,812.23	104,320.42
2010	101.22	5,690	2,280	274,800.58	219,627.97	38,597.16	96,347.83	241,797.62	41,943.73	104,701.69
2011	103.31	5,710	2,275	279,452.11	232,664.32	40,749.39	102,254.21	250,969.95	43,387.08	108,873.08
2012	105.21	5,726	2,288	284,804.89	243,576.47	42,537.36	106,441.40	257,986.16	44,471.22	111,280.50
2013	106.91	5,743	2,289	288,074.98	245,382.48	42,728.32	107,180.88	255,770.17	43,961.20	110,273.47
2014	108.83	5,758	2,308	294,892.74	255,753.17	44,414.11	110,826.72	261,891.20	44,891.92	112,019.02
2015	110.00	5,768	2,320	302,076.00	264,987.59	45,941.85	114,241.54	268,459.11	45,941.85	114,241.54

Source: U.S. Census Bureau, State Population Totals: 2010-2017 https://www.census.gov/data/datasets/2017/demo/popest/state-total.html; U.S. Department of Commerce, Bureau of Economic Analysis, Implicit Price Deflators for Gross Domestic Product (1975 – 2015) https://www.bea.gov/iTable/iTable.cfm?reqid=19&step=2#reqid=19&step=3&isuri=1&1910=x&0=-99&1921=survey&1903=13&1904=1985&1905=2018&1906=a&1911=0, State Annual Personal Income and Empolyment (1975-2015) https://www.bea.gov/regional/index.htm.

Glossary

DEFINITIONS

Energy is the ability to do work. It is stored in various forms including chemical energy in biomass, coal and oil, nuclear energy in uranium, gravitational energy in water used in hydroelectric plants, the wind and the sun.

There are two common ways to account for energy use; **resource energy** consumption and **end-use** energy consumption. End-use refers to the energy content of electricity and other fuels at the point of use by customers. Resource energy includes all energy resources used to generate electricity, including the energy content of the coal, petroleum, nuclear and renewable fuels.

One **British thermal unit (Btu)** is the amount of energy in the form of heat which will raise the temperature of one pound of water one degree Fahrenheit.

One **calorie** is the amount of energy in the form of heat which will raise the temperature of one gram of water one degree Centigrade.

One **Btu** is equal to 252 calories.

One **watt** is a unit of power, or rate of energy delivery, of one joule per second, or equivalently, one ampere of electric current delivered across a potential of one volt. One kilowatt (kW) is 1,000 watts. Ten 100-watt light bulbs require 1,000 watts or 1 kW of power to stay lit at any point in time.

One **kilowatt-hour (kWh)** is one kilowatt of electric power delivered for one hour (or the equivalent). One kilowatt-hour is 1,000 watt-hours. Ten 100-watt light bulbs burning for one hour consume 1,000 watt-hours or 1 kWh.

Heating degree days are relative measurements of outdoor air temperature and are obtained by subtracting the mean daily temperature from an established base temperature of 65 degrees Fahrenheit.

Cooling degree days are relative measurements of outdoor air temperature and are obtained by subtracting an established base temperature of 65 degrees Fahrenheit from the mean daily temperature.

City Gate: The point where a pipeline or distribution company delivers natural gas to the natural gas utility serving the city and the surrounding area.

Electric imports: The estimated resource energy used in other states (or Canada) to produce the electricity imported into Wisconsin. This resource energy is estimated assuming 11,300 Btu of resource energy per kWh imported into Wisconsin.

Non-attainment Areas: A designation of the Environmental Protection Agency. See http://www.epa.gov/oaqps001/greenbk/ancl.html for additional information.

Non-coincident peak demand: The sum of individual monthly peak electric demands from a given set of utility companies.

PADD II: Petroleum Area Defense District 2; encompasses 15 midwestern states: IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, OK, SD, TN, WI.

Population-weighted heating/cooling degree days: are derived by multiplying the number of heating/cooling degree days in each degree day zone by the population in that degree day zone, adding the products, then dividing by the total state population (based on 2010 census data).

MEASUREMENT OF ENERGY SUPPLIES

Petroleum products are measured in either gallons or barrels. A barrel contains 42 gallons. Petroleum is refined from crude oil into various products such as kerosene, diesel fuel, home heating oil (No. 1 and No. 2 oils), and other heating oils (No. 3 – No. 6), gasoline and liquefied petroleum gas (propane). The energy content of a gallon of each product is listed in the conversion table.

Natural Gas is measured in either Mcf (1,000 cubic feet) or in therms. One Mcf contains approximately ten therms or one million Btu.

Coal is measured in tons. The three broad classifications of coal, in order of greatest energy content, are bituminous, sub-bituminous and lignite.

Wood is usually measured in either tons or cords. A cord is an amount of stacked wood measuring 8 feet x 4 feet x 4 feet. The weight of a cord of wood varies according to the type of wood and its moisture content, but is estimated at 1.5 to 2 tons. A face cord is the 8 feet x 4 feet face of a stacked cord but of shorter width. Common usage is three face cords to a full cord.

Conversion Factors

AVERAGE ENERGY CONTENT OF VARIOUS FUELS	
1 kilowatt-hour of electricity	3,413 Btu
1 cubic foot of natural gas	1,008 to 1,034 Btu
1 therm of natural gas	100,000 Btu
1 gallon of liquefied petroleum gas (LPG)	95,475 Btu
1 gallon of crude oil	138,095 Btu
1 barrel of crude oil	5,800,000 Btu
1 gallon of kerosene or light distillate oil	135,000 Btu
1 gallon of middle distillate or diesel fuel oil	138,690 Btu
1 gallon of residual fuel oil	149,690 Btu
1 gallon of gasoline	125,000 Btu
1 gallon of ethanol	84,400 Btu
1 gallon of methanol	62,800 Btu
1 gallon of gasohol (10% ethanol, 90% gasoline)	120,900 Btu
1 pound of coal	8,100 to 13,000 Btu
1 ton of coal	16,200,000 to 26,000,000 Btu
1 ton of coke	26,000,000 Btu
1 ton of wood	9,000,000 to 12,000,000 Btu
1 standard cord of wood	18,000,000 to 24,000,000 Btu
1 face cord of wood	6,000,000 to 8,000,000 Btu
1 pound of low pressure steam (recoverable heat)	1,000 Btu
1 compressed natural gas gasoline gallon equivalent	114,818 Btu

MEASUREMENT CONVERSIONS
1 short ton (ton) = 2,000 pounds = 6.65 barrels (crude oil)
1 metric ton (tonn) = 2,200 pounds
1 barrel (bbl) = 42 gallons = 5.615 cubic feet = 159.0 liters
1 Mcf = 1,000 cubic feet
1 therm = 10^5 Btu = 100,000 Btu
1 thousand Btu (KBtu) = 1,000 Btu
1 million Btu (MMBtu) = 1,000,000 Btu
1 quad = 10^{15} (quadrillion) Btu or 1,000,000,000 MMBtu
1 kilowatt-hour (kWh) = 1,000 watt-hours
1 megawatt-hour (MWh) = 1,000 kWh or 1,000,000 watt-hours
1 gigawatt-hour (GWh) = 1,000 MWh or 1,000,000,000 watt-hours
1 gallon = 4.524 pounds liquefied petroleum gas
1 standard cord of wood = 8 feet x 4 feet x 4 feet = 128 cubic feet = approx. 3,000-4,000 lbs.
1 face cord of wood = 8 feet x 4 feet x 16 inches = 42.7 cubic feet = approx. 1,333 lbs.