

CHAPTER 8

Miscellaneous

United States Energy Use and Gross Domestic Product

The federal Bureau of Economic Analysis (BEA) periodically adjusts the base year for economic data. These data represent the most recent revision of BEA data to 2005 as the base year.

1970-2012

Year	Resident Population (Thousands) ^{a,r}	Gross Domestic Product (Bil. of 2005\$)	Resource Energy Consumption (Quad. Btu) ^c	Electric Sales to Ultimate Customers (Bil. of kWh) ^d	Resource Energy Per GDP (Thous. Btu/2005\$)	Electric Sales Per GDP (kWh/2005\$)
1970	205,052	4,266.3	67.84	1,392.0	15.90	0.3263
1975	215,973	4,875.4	71.96	1,747.1	14.76	0.3584
1980	227,225	5,834.0	78.07	2,094.4	13.38	0.3590
1985	237,924	6,843.4	76.39	2,324.0	11.16	0.3396
1990	249,623	8,027.1	84.49	2,712.6	10.52	0.3379
1995	266,278	9,086.0	91.03	3,013.3	10.02	0.3316
1996	269,394	9,425.8	94.02	3,101.1	9.97	0.3290
1997	272,647	9,845.9	94.60	3,145.6	9.61	0.3195
1998	275,854	10,274.7	95.02	3,264.2	9.25	0.3177
1999	279,040	10,770.7	96.65	3,312.1	8.97	0.3075
2000	282,162	11,216.4	98.81	3,421.4	8.81	0.3050
2001 ^f	284,969	11,337.5	96.17	3,394.5	8.48	0.2994
2002 ^f	287,625	11,543.1	97.65	3,465.5	8.46	0.3002
2003 ^f	290,108	11,836.4	97.94	3,493.7	8.27	0.2952
2004 ^f	292,805	12,246.9	100.16	3,547.5	8.18	0.2897
2005 ^f	295,517	12,623.0	100.28	3,661.0	7.94	0.2900
2006 ^f	298,380	12,958.5	99.63	3,669.9	7.69	0.2832
2007 ^f	301,231	13,206.4	101.30	3,764.6	7.67	0.2851
2008 ^f	304,094	13,161.9	99.28	3,733.0	7.54	0.2836
2009 ^f	306,772	12,757.9	94.56	3,596.9	7.41	0.2819
2010 ^f	309,326	13,063.0	97.98	3,754.5	7.50	0.2874
2011 ^f	311,588	13,299.1	97.47	3,749.8	7.33	0.2820
2012^p	313,914	13,593.2	95.14	3,686.8	7.00	0.2712

^a As of July 1.

^c Quadrillions of Btu.

^d Beginning in 1975, the DOE data source has been used.

^p Preliminary.

^r Revised.

Source: U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review* (March 2013), <http://www.eia.doe.gov/mer/>; Tables 1.3 and 7.1 (1970-2012); Wisconsin Department of Administration Demographic Services resident, national population estimates as of July 1 (1970-2012). Bureau of Economic Analysis, Regional Economic Accounts, <http://www.bea.gov/bea/regional/> (1970-2012).

ENERGY USE
PER DOLLAR
OF GDP
47.7%
SINCE 1980

Until the early 1970s, energy use kept pace with the growth in the nation's economy. Economic growth during the 1970s and early 1980s was accompanied by slower growth in energy use due to increases in efficiency and a shift away from energy intensive industries.

Efficiency, in terms of decreasing energy required to produce a dollar of Gross Domestic Product, continues to increase slowly.

The ratio between electric sales and Gross Domestic Product has fallen 3.8 percent since 2011, and 24.5 percent since 1980. Energy use per dollar of Gross Domestic Product declined 4.5 percent since 2011 and 47.7 percent since 1980.

Wisconsin Population, Households, Gross State Product and Personal Income

HOUSEHOLD
INCOME
IN 2012 DOLLARS
1.2%
ANNUALLY
SINCE 1990

Wisconsin's population and number of households continue to grow slowly, with increases over 2011 of 0.1 and 0.3 percent respectively.

After growing at an annual rate of 2.4 percent over the 10-year period from 1990 to 2000, 2012 household income (in constant 2012 dollars) has slowed to an annual rate of 1.2 percent since 1990.

Household income growth, in constant 2012 dollars, averaged 1.2 percent annually over the 22-year period since 1990, while 2012 represents a 0.6 percent increase in household income. Gross State Product in 2012 dollars increased 1.4 percent in 2012 compared to 2011.

Data in this table are provided as a reference point for making per capita comparisons. To explain recent increases in residential energy use, personal income per capita and per household are shown in current and constant 2012 dollars.

1970-2012

Year	GDP Deflator	Population (Thousands)	No. of Households ^a (Thousands)	Gross State Product (Million 2012 Dollars)	Personal Income ^b (Current Dollars)			Personal Income ^b (2012 Dollars)		
					Total (Million Dollars)	Dollars Per Capita	Dollars Per Household	Total (Million Dollars)	Dollars Per Capita	Dollars Per Household
1970 ^r	24.34	4,417.8	1,328.8	95,738	17,621	3,989	13,261	83,546	18,911	62,874
1975 ^r	33.59	4,565.8	1,486.8	111,278	27,830	6,095	18,718	95,597	20,938	64,297
1980 ^r	47.79	4,705.6	1,652.3	127,721	47,519	10,098	28,760	114,731	24,382	69,439
1985 ^r	61.63	4,744.7	1,720.4	138,212	65,132	13,727	37,860	121,947	25,702	70,885
1990 ^r	72.26	4,891.8	1,822.1	160,056	88,213	18,033	48,412	140,858	28,795	77,304
1995 ^r	81.61	5,101.6	1,946.3	191,323	116,074	22,753	59,639	164,124	32,171	84,326
1996 ^r	83.16	5,143.0	1,971.6	199,032	122,953	23,907	62,362	170,601	33,171	86,530
1997 ^r	84.63	5,192.3	1,998.4	206,235	130,478	25,129	65,292	177,902	34,263	89,023
1998 ^r	85.58	5,234.4	2,024.5	216,153	141,019	26,941	69,658	190,126	36,323	93,914
1999 ^r	86.84	5,274.8	2,053.9	225,550	147,462	27,956	71,795	195,932	37,145	95,393
2000 ^r	88.72	5,363.7	2,084.6	230,656	156,603	29,197	75,125	203,667	37,971	97,703
2001 ^r	90.73	5,400.4	2,115.7	233,427	162,773	30,141	76,935	207,014	38,333	97,846
2002 ^r	92.20	5,453.9	2,147.3	238,093	167,708	30,750	78,103	209,892	38,485	97,748
2003 ^r	94.14	5,490.7	2,170.9	242,819	173,248	31,553	79,804	212,360	38,676	97,821
2004 ^r	96.79	5,533.0	2,197.4	249,052	180,303	32,587	82,055	214,954	38,850	97,824
2005 ^r	100.00	5,580.8	2,223.5	252,338	186,545	33,426	83,897	215,248	38,570	96,806
2006 ^r	103.23	5,617.7	2,242.5	255,620	198,556	35,344	88,543	221,936	39,506	98,970
2007 ^r	106.23	5,648.1	2,254.8	256,918	206,648	36,587	91,647	224,468	39,742	99,550
2008 ^r	108.58	5,675.2	2,265.7	250,889	215,330	37,943	95,041	228,824	40,320	100,997
2009 ^r	109.53	5,688.0	2,275.5	249,923	208,963	36,737	91,832	220,137	38,702	96,743
2010 ^r	110.99	5,696.0	2,279.8	255,132	216,339	37,981	94,895	224,904	39,485	98,652
2011 ^r	113.36	5,687.0	2,287.8	257,882	226,042	39,747	98,803	230,086	40,458	100,571
2012 ^p	115.39	5,694.2	2,295.0	261,548	232,129	40,766	101,148	232,129	40,766	101,148

^a Household numbers for intercensal years estimated on basis of Public Service Commission of Wisconsin reports of electric utility residential customers. Starting in 2000, estimates are from the Department of Administration, Wisconsin Demographic Services Center.

^b Personal Income data are annually revised based on federal BEA adjustments (2012).

^p Preliminary estimates.

^r Revised.

Source: U.S. Department of Commerce, Bureau of Census, Population Division, *2000 Census of Population and Housing*, CPH-1-51 (August 2001) and Preliminary Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico: April 1, 2000 to July 1, 2012 (NST-PEST2010-01) (February 2012); Final Official Population Estimates and Census Counts for Wisconsin Counties: 1970 – 2008; Department of Administration, Wisconsin Demographic Services Center (1970-2012) and Intercensally Revised Annual Estimates of Residents Housing Units and Households in Wisconsin, 1990-2012 (May 2012); U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts, <http://www.bea.gov/bea/regional/> (1970-2012).

Wisconsin Employment, by Type

1970-2012 THOUSANDS

Year	Working Age 18-64	Total Employment ^a	Percent Working Age Employed	Total NonFarm ^{b,e}	Goods Producing ^{b,c}	Services Producing ^{b,d}
1970	2,362.6			1,530.5	565.7	964.8
1975	2,572.5			1,677.0	570.5	1,106.5
1980	2,783.7			1,938.1	630.6	1,307.5
1985	2,858.3			1,983.1	580.4	1,402.7
1990	2,949.3	2,486.1	84.3%	2,291.5	614.8	1,676.7
1995	3,122.9	2,773.6	88.8%	2,558.6	672.5	1,886.1
1996	3,157.5	2,815.6	89.2%	2,600.6	679.2	1,921.4
1997	3,194.8	2,855.8	89.4%	2,655.8	694.9	1,960.9
1998	3,228.6	2,870.0	88.9%	2,718.0	713.5	2,004.6
1999	3,261.0	2,879.0	88.3%	2,784.0	720.5	2,063.5
2000	3,292.4	2,894.9	87.9%	2,833.8	723.0	2,110.8
2001	3,332.7	2,897.9	87.0%	2,813.9	689.5	2,124.3
2002	3,372.3	2,860.9	84.8%	2,782.4	656.2	2,125.8
2003	3,406.3	2,862.6	84.0%	2,773.8	631.9	2,142.0
2004	3,443.8	2,868.4	83.3%	2,804.5	633.3	2,171.2
2005	3,487.5	2,890.1	82.9%	2,838.3	636.4	2,201.9
2006	3,516.8	2,932.5	83.4%	2,861.5	637.2	2,224.4
2007	3,538.8	2,948.7	83.3%	2,878.3	630.9	2,247.5
2008 ^r	3,554.9	2,941.3	82.7%	2,871.0	614.7	2,256.3
2009 ^r	3,564.8	2,845.2	79.8%	2,744.1	541.1	2,203.0
2010 ^r	3,570.2	2,823.3	79.1%	2,728.7	528.0	2,200.7
2011 ^r	3,588.2	2,838.0	79.1%	2,758.6	540.7	2,217.9
2012 ^p	3,584.3	2,850.4	79.5%	2,789.4	552.7	2,236.8

a Nonfarm wage and salary employment.

b These data categories represent numbers of jobs, not numbers of individuals.

c Goods Producing is a compilation of the Mining, Natural Resources, and Construction industries.

d Services Producing is a compilation of all non-farm jobs that do not produce goods.

e Total Non-Farm job is a compilation of many non-farm job categories, which includes Goods Producing and Services Producing.

p Preliminary.

r Revised.

Source: Wisconsin Department of Administration, Demographic Services Center, *Single Year of Age Projections, 2000-2012, Broad Age Groups, Intercensal Revision Controlled to State Estimates (May 2012)*; Wisconsin Department of Workforce Development, Labor Market Information Section, Current Employment Statistics (CES) <http://worknet.wisconsin.gov/worknet/daces.aspx?menuselection=da> (1990-2012) and Local Area Unemployment Statistics (LAUS) <http://worknet.wisconsin.gov/worknet/dalaus.aspx?menuselection=da> (1980-2012).

WISCONSIN
LABOR FORCE
0.1%

WISCONSIN
EMPLOYMENT
0.4%

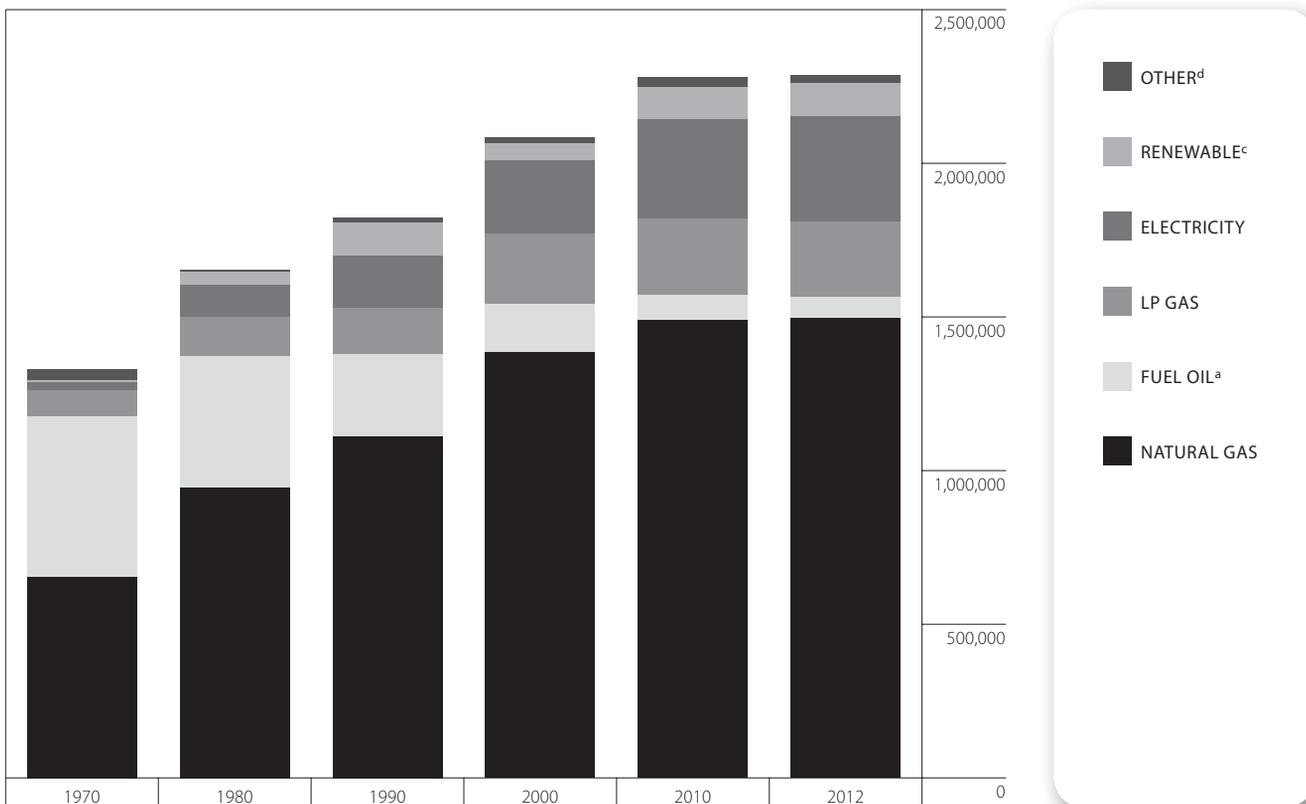
In 2012, Wisconsin's working age labor force decreased 0.1 percent. Employment in the state increased 0.4 percent (12,357 jobs). Employment in all sectors increased. In the goods producing sector, by 2.2 percent, in the services-producing sector by 0.9 percent, and by 1.1 percent in the nonfarm sector. Most Wisconsin jobs are classified as services producing.

Wisconsin Occupied Dwelling Units, by Type of Fuel for Space Heating

1970, 1980, 1990, 2000, 2010 AND 2012 NUMBER OF UNITS AND PERCENT OF TOTAL

Fuel	1970		1980		1990		2000		2010		2012	
Natural Gas	654,851	49.3%	945,092	57.2%	1,111,733	61.0%	1,384,230	66.4%	1,488,259	65.3%	1,495,819	65.4%
Fuel Oil ^a	521,256	39.2%	425,622	25.8%	265,600	14.6%	158,499	7.6%	81,908	3.6%	68,459	3.0%
LP Gas	85,549	6.4%	130,476	7.9%	152,823	8.4%	228,408	11.0%	250,022	11.0%	245,071	10.7%
Electricity	24,763	1.9%	101,489	6.1%	168,615	9.3%	236,755	11.4%	320,964	14.1%	343,453	15.0%
Wood	6,795	0.5%	42,783	2.6%	107,239	5.9%	56,862	2.7%	106,608	4.7%	106,058	4.6%
Coal or Coke	29,708	2.2%	2,591	0.2%	787	0.0%	330	0.0%	308	0.0%	205	0.0%
Solar Energy	NA		NA		NA		NA		345	0.0%	584	0.0%
Other	5,334	0.4%	3,578	0.2%	11,294	0.6%	13,839	0.7%	22,028	1.0%	20,485	0.9%
None	548	0.0%	630	0.0%	4,027	0.2%	5,621	0.3%	9,090	0.4%	8,228	0.4%
Total^b	1,328,804		1,652,261		1,822,118		2,084,544		2,279,532		2,288,362	

1970-2012 NUMBER OF UNITS



^a Includes kerosene.

^b Number of households data may not match due to different data sources.

^c Includes wood and solar energy.

^d Includes coal/coke, no fuel or other fuel as defined by the American Community Survey.

Source: U.S. Department of Commerce, Bureau of the Census, *Census of Housing* (1970, 1980, 1990, 2000-2012) and American Community Survey (2005-2012).

Wisconsin Motor Vehicle Registrations, by Type of Vehicle

1970-2012

Year	Autos	Trucks	Buses	Motorcycles	Trailers	Total ^{a,b}
1970	1,762,681	317,096	8,178	53,642	64,065	2,210,492
1975	2,023,427	426,756	11,422	96,629	81,378	2,644,681
1980	2,248,951	665,012	13,375	169,329	93,288	3,215,302
1985	2,310,024	771,264	10,325	176,037	101,030	3,406,196
1990	2,456,175	1,053,280	14,518	149,281	152,712	3,825,966
1995	2,419,389	1,399,236	14,940	161,773	240,841	4,281,803
1996	2,398,351	1,464,366	15,413	136,794	205,177	4,260,959
1997	2,370,453	1,537,241	12,497	161,509	213,415	4,339,088
1998	2,402,019	1,668,241	17,061	151,391	231,934	4,513,250
1999	2,396,072	1,735,326	14,546	171,839	242,849	4,605,088
2000	2,405,408	1,822,078	15,587	160,927	256,890	4,703,294
2001	2,413,001	1,922,916	16,259	192,312	269,931	4,860,457
2002	2,404,081	2,012,847	17,061	183,890	285,471	4,948,282
2003	2,401,816	2,103,643	17,555	215,231	303,852	5,091,716
2004	2,387,459	2,176,903	14,099	207,592	334,898	5,170,728
2005	2,384,717	2,280,170	12,418	278,055	365,435	5,320,795
2006	2,427,905	2,354,954	13,222	266,195	396,374	5,458,650
2007	2,427,882	2,404,895	14,110	324,833	419,816	5,591,536
2008	2,391,300	2,400,680	10,736	307,808	411,871	5,522,395
2009	2,340,991	2,429,194	12,738	345,737	417,031	5,545,691
2010	2,333,029	2,449,286	13,410	317,387	426,092	5,539,204
2011	2,282,310	2,451,634	14,411	361,893	416,550	5,526,798
2012	2,274,596	2,490,523	15,253	323,844	447,195	5,551,411

TOTAL VEHICLE
REGISTRATIONS
2.2%

In 2012, total vehicle registrations increased by 2.2 percent; auto registrations increased slightly, by 0.1 percent.

The truck category includes vans, sports utility vehicles and light trucks.

These data are provided as a factor to help compare the use of motor vehicle fuels across the years.

^a As of June 30.

^b Total includes motor homes, mopeds and municipal vehicles; it does not equal sum of registration types shown before 2005. From 2005 on, motor homes, mopeds and municipal vehicles are included in trucks, motorcycles and autos, respectively.

Source: Wisconsin Department of Transportation (January 2013).

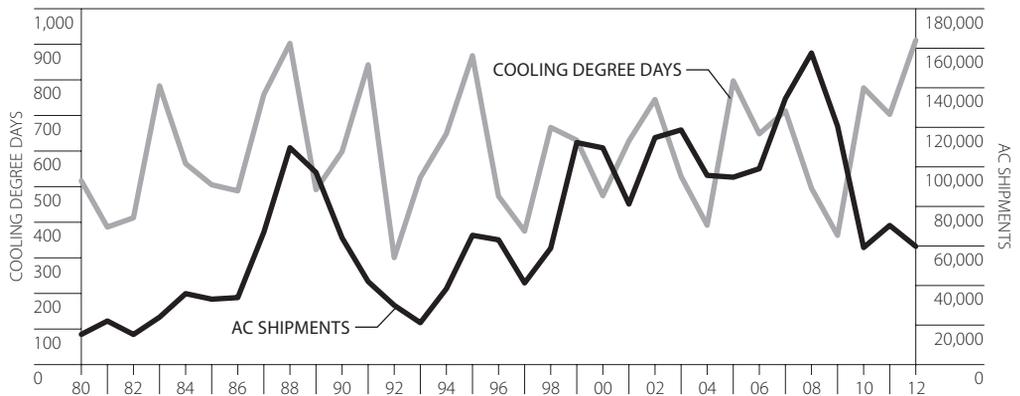
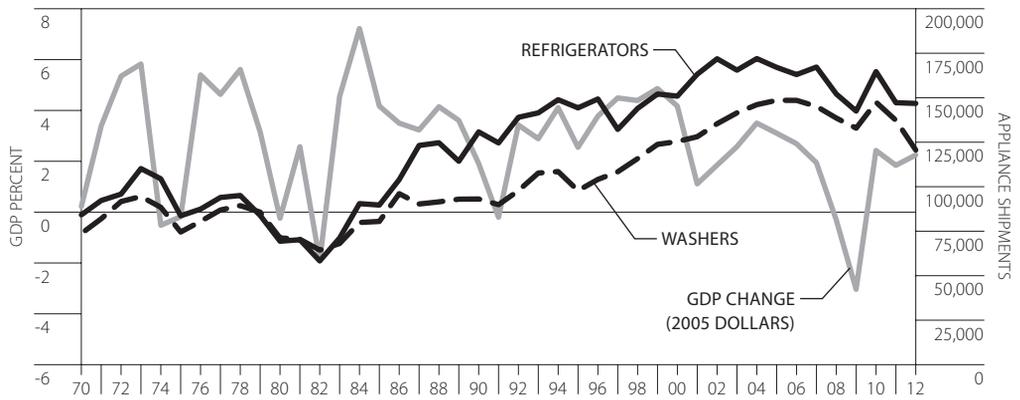
Wisconsin Appliance Shipments, by Type, Cooling Degree Days and Gross National Product

The first graph plots shipments of refrigerators and washing machines against the annual percent change in the U.S. Gross Domestic Product (GDP) in constant 2005 U.S. dollars. This graph illustrates the relationship between large appliance purchases, the national economy and energy consumption.

The second graph plots appliance shipments of room air conditioners (RACs) against Wisconsin's Cooling Degree Days (CDDs)^a to demonstrate the relationship between appliance purchases, energy consumption and the weather.

1970-2012

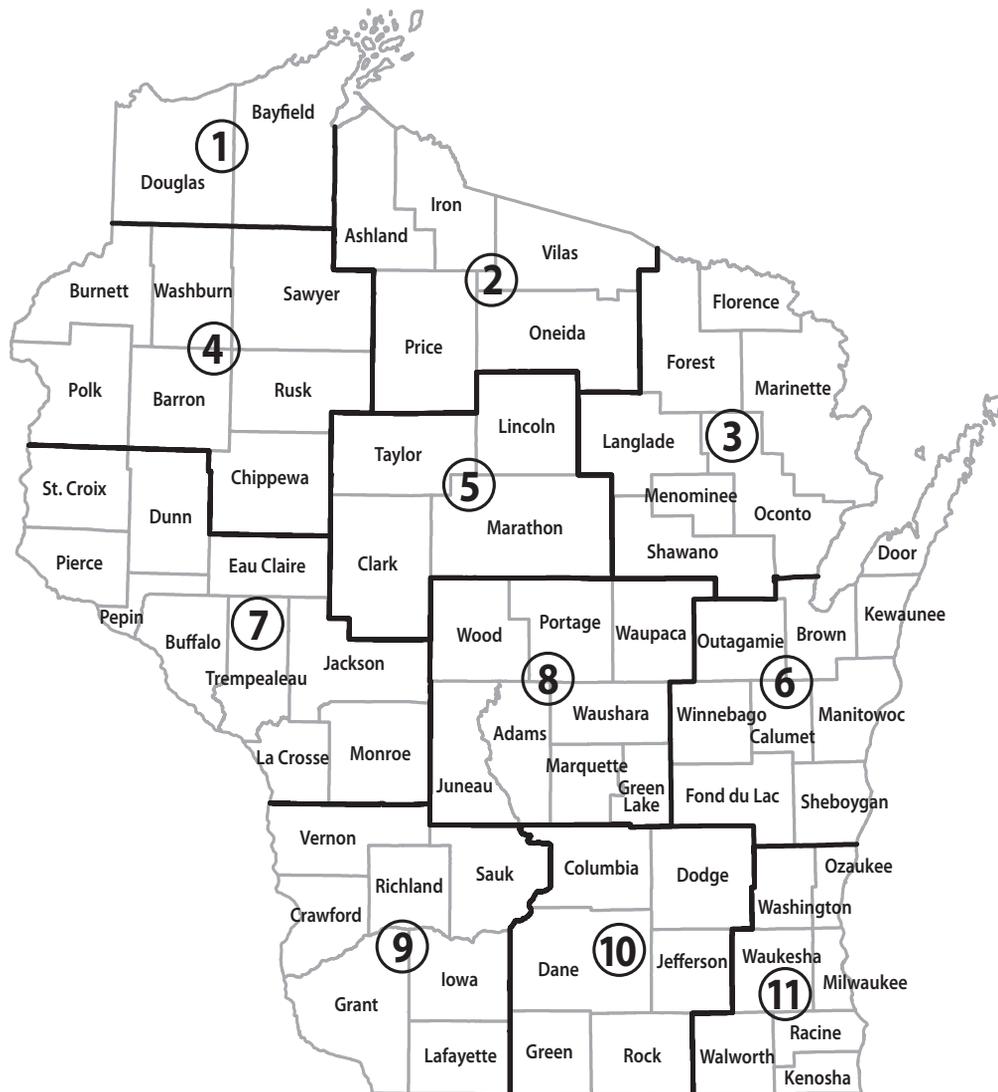
Year	Cooling Degree Days	Percent Change in GDP	Refrigerators	Room Air Conditioners	Washers
1970		0.19%	84,180	62,715	73,666
1975		-0.21%	83,658	31,297	74,547
1980	516	-0.28%	69,380	15,290	71,230
1985	505	4.14%	89,700	33,100	80,500
1990	599	1.88%	130,800	64,100	93,100
1995	868	2.51%	144,300	65,400	97,800
2000	474	4.14%	150,900	109,600	125,400
2005	797	3.07%	167,062	94,773	148,563
2006	648	2.66%	163,019	99,097	148,519
2007	713	1.91%	167,234	134,569	145,139
2008	495	-0.34%	152,087	157,601	138,575
2009	363	-3.07%	142,502	120,597	132,900
2010	778	2.39%	164,700	59,200	147,500
2011	703	1.81%	147,200	70,400	137,300
2012	912	2.21%	146,800	59,800	120,600



^a Additional information about degree days can be found at the end of this chapter.

Source: Association of Home Appliance Manufacturers, *Distributor Sales by State—2012*. Association of Home Appliance Manufacturers, *Trends in Energy Efficiency—2012*. Compiled from tables in this chapter on Cooling Degree Days and the Gross Domestic Product.

Wisconsin Degree Day Zones



The energy needed to heat and cool homes and other buildings strongly depends on the outdoor temperature. The next few pages provide a set of tables listing typical and historic degree day figures throughout Wisconsin in eleven degree day zones—shown in the map.

Heating and cooling degree days are relative measures of outdoor air temperature, and are defined as deviations of the mean daily temperature below or above a base temperature of 65 degrees Fahrenheit. Data for this section are collected through a partnership with the Wisconsin State Climatology Office.

Heating and cooling degree days are provided as population-weighted averages for the state, to provide a point of reference for comparing the severity of winters and summers to statewide energy use.

Wisconsin Normal Heating Degree Days, by Zone and Month

Heating degree days are relative measurements of outdoor air temperature and are defined as deviations of the mean daily temperature below a base temperature (65 degrees Fahrenheit, by convention). For example, a weather station recording a mean daily temperature of 40 degrees Fahrenheit would report 25 heating degree days. The normal heating degree days for each zone and month are the 30-year averages, from 1981 through 2010.

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
January	1,647	1,635	1,567	1,682	1,562	1,499	1,568	1,547	1,506	1,434	1,325	1,451
February	1,365	1,372	1,312	1,361	1,289	1,251	1,277	1,263	1,219	1,173	1,095	1,195
March	1,186	1,173	1,117	1,108	1,072	1,060	1,043	1,043	981	963	929	1,000
April	762	697	667	632	604	637	576	586	557	558	588	597
May	435	343	335	306	295	326	257	278	262	266	313	300
June	157	112	102	86	73	92	62	69	57	60	84	79
July	47	36	30	24	15	23	11	18	13	10	11	15
August	66	56	48	47	34	40	28	36	28	27	15	28
September	253	256	232	232	210	207	194	194	175	171	126	172
October	627	631	594	588	556	556	551	534	513	505	433	505
November	1,002	1,031	973	1,028	963	914	962	942	899	866	780	875
December	1,486	1,486	1,418	1,534	1,433	1,350	1,430	1,407	1,364	1,300	1,195	1,313
Total	9,033	8,828	8,392	8,628	8,106	7,955	7,959	7,917	7,574	7,333	6,894	7,531

^a Population-weighted statewide average, based on 2010 census.

Source: National Climatic Data Center, 1981-2010 U.S. Climate Normals, <http://ggweather.com/normals>

Wisconsin Normal Cooling Degree Days, by Zone and Month

Cooling degree days are relative measurements of outdoor air temperature and are defined as deviations of the mean daily temperature above a base temperature (65 degrees Fahrenheit, by convention). For example, a weather station recording a mean daily temperature of 90 degrees Fahrenheit would report 25 cooling degree days. The normal cooling degree days for each zone and month are the 30-year averages, from 1981 through 2010.

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
April	1	1	2	2	1	2	4	4	3	4	5	4
May	9	14	15	17	18	16	28	26	22	26	25	23
June	48	67	75	85	97	83	120	112	113	120	120	108
July	118	127	139	157	172	150	214	184	193	206	222	194
August	89	96	103	116	130	111	161	136	152	157	193	155
September	22	25	29	31	35	33	48	44	48	51	69	51
October	1	1	2	2	3	3	4	4	5	4	7	5
Total	288	331	365	410	456	398	579	510	536	568	641	538

^a Population-weighted statewide average, based on 2010 census.

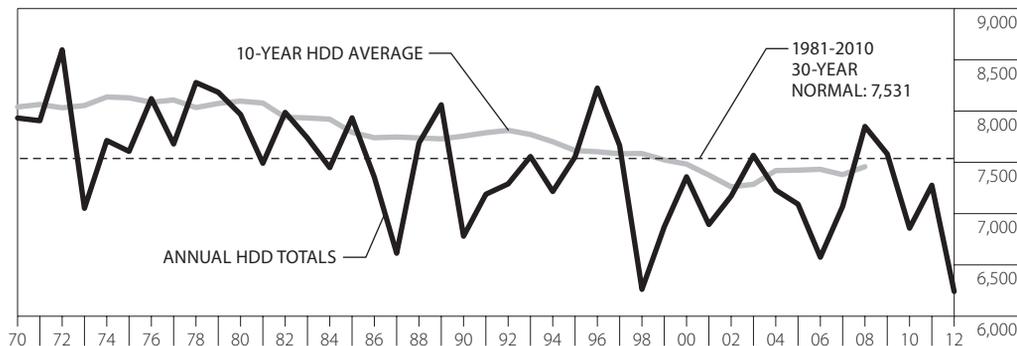
Source: National Climatic Data Center, 1981-2010 U.S. Climate Normals, <http://ggweather.com/normals>

Wisconsin Population-Weighted Heating Degree Days

1970-2012

What significance does the number of HDDs have on energy use? Increased HDDs means that space heating is used more because the temperature is cooler. Fewer HDDs means that space heating is used less because the temperature is warmer. Fluctuations in HDDs can also influence such variables as price and volume of winter heating fuels (e.g., propane, heating oil, natural gas).

The 10-year average and 30-year normal^b are presented here as a point of reference for the variation in HDDs. The 10-year average is plotted in the middle of an 11-year period, averaging the five years previous to, and five years after, the plotted year. For example, the number plotted on the graph at 2003 is the average of 1998 through 2008. The 10-year average is not plotted for 2009 through 2012 because these averages cannot yet be calculated.



Month	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Normal	1,451	1,195	1,000	597	300	79	15	28	172	505	875	1,313	7,531
1970	1,715	1,292	1,116	565	295	81	15	15	179	430	888	1,343	7,934
1975	1,375	1,246	1,212	790	221	74	23	17	258	412	713	1,268	7,609
1980	1,465	1,378	1,141	582	240	117	8	14	177	634	867	1,345	7,968
1985	1,614	1,296	883	474	189	107	7	32	194	486	993	1,660	7,935
1990	1,141	1,119	880	532	361	52	19	19	131	497	708	1,321	6,780
1995	1,344	1,197	890	682	254	38	8	1	213	455	1,097	1,375	7,554
2000	1,428	1,057	759	626	245	86	26	15	189	384	909	1,636	7,360
2005	1,436	1,043	1,073	491	331	20	9	12	75	425	811	1,369	7,095
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

2012 HDD
17.1%
 BELOW
 THE 30-YEAR
 NORMAL

Using population-weighted^a heating degree days (HDDs) as an index, the winter for 2012 was warmer than the winter of 2011, with 14.2 percent fewer HDDs.

In 2012, the number of HDDs (6,241) was 17.1 percent below the 30-year normal (7,531).

The 10-year average is plotted using HDD data from the National Climate Data Center. The NCDC revised its method of calculating HDDs, so the average is slightly different than shown in previous editions of this book.

The HDD data in this publication is weighted by population to better illustrate the connection between degree days and energy consumption.

^a Population-weighted heating degree days are derived by multiplying the number of heating 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).

^b The 30-year normal runs from 1981 to 2010 and is developed by the National Oceanographic and Atmospheric Agency (NOAA).

Source: Wisconsin State Energy Office, degree day data based on daily data from the University of Wisconsin-Madison, Wisconsin State Climatology Office (<http://www.aos.wisc.edu/~sco/>) (1970-2012) and from the National Oceanographic and Atmospheric Administration (<http://www.nws.noaa.gov/climate/>) (1970-2012).

2011 Wisconsin Heating Degree Days, by Zone and Month

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
January	1,688	1,689	1,642	1,780	1,635	1,578	1,689	1,649	1,559	1,485	1,369	1,516
February	1,335	1,349	1,306	1,392	1,316	1,253	1,323	1,298	1,230	1,193	1,108	1,211
March	1,228	1,241	1,192	1,224	1,157	1,126	1,156	1,171	996	998	967	1,059
April	746	797	747	671	703	679	636	693	565	572	613	636
May	524	383	365	346	323	335	284	311	271	300	350	330
June	194	106	94	77	77	73	72	87	44	40	74	70
July	16	5	3	2	1	0	1	2	0	0	0	1
August	19	49	29	12	3	3	3	6	1	0	0	4
September	275	335	298	247	262	246	240	235	222	215	156	211
October	497	571	501	458	462	419	450	432	390	396	356	404
November	908	956	869	878	860	766	814	795	772	740	666	748
December	1,263	1,362	1,237	1,299	1,266	1,106	1,245	1,161	1,083	1,052	974	1,088
Total	8,693	8,843	8,283	8,386	8,065	7,584	7,913	7,840	7,133	6,991	6,633	7,277

^a Population-weighted statewide average, based on 2010 census.

Source: Wisconsin State Energy Office, degree day data based on daily data from the University of Wisconsin-Madison, State Climatology Office (<http://www.aos.wisc.edu/~sco/>) and from the National Oceanographic and Atmospheric Administration (<http://www.nws.noaa.gov/climate/>) (1970-2012).

2012 Wisconsin Heating Degree Days, by Zone and Month

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
January	1,419	1,516	1,401	1,441	1,405	1,273	1,370	1,311	1,245	1,217	1,128	1,242
February	1,156	1,285	1,162	1,167	1,154	1,031	1,108	1,054	1,025	1,021	974	1,036
March	753	730	664	659	625	582	549	552	463	479	507	541
April	706	703	638	588	584	556	524	568	466	509	551	550
May	314	286	233	191	200	163	152	158	99	121	177	166
June	96	101	68	50	48	29	28	45	30	22	37	36
July	3	5	3	0	1	0	0	3	0	0	0	0
August	56	105	67	42	36	13	25	32	16	17	0	17
September	287	365	305	259	243	229	216	227	173	195	138	194
October	703	689	626	667	618	550	612	575	504	503	464	530
November	965	1,038	947	967	912	841	868	867	803	800	770	826
December	1,323	1,318	1,224	1,370	1,268	1,118	1,306	1,227	1,172	1,080	957	1,103
Total	7,781	8,141	7,338	7,401	7,094	6,385	6,758	6,619	5,996	5,964	5,703	6,241

^a Population-weighted statewide average, based on 2010 census.

Source: Wisconsin State Energy Office, degree day data based on daily data from the University of Wisconsin-Madison, State Climatology Office (<http://www.aos.wisc.edu/~sco/>) and from the National Oceanographic and Atmospheric Administration (<http://www.nws.noaa.gov/climate/>) (1970-2012).

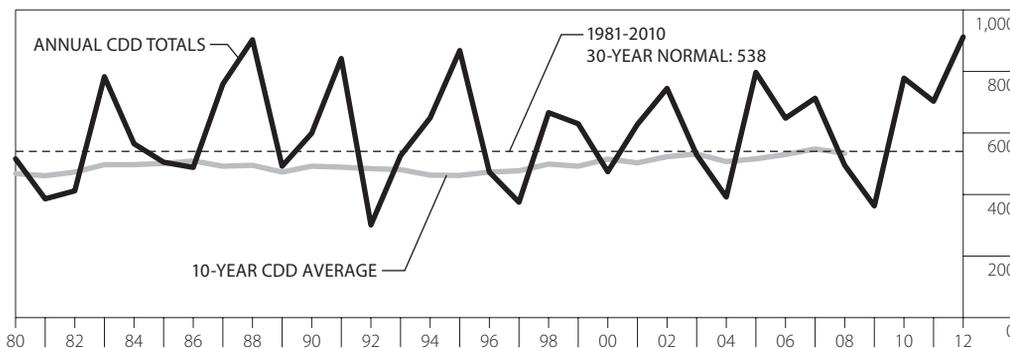
Wisconsin Population-Weighted Cooling Degree Days

1980-2012

What significance does the number of CDDs have on energy use? Increased CDDs means that air conditioning may be used more because the temperature is warmer. Fewer CDDs means that air conditioning may be used less because the temperature is cooler. Fluctuations in CDDs can also influence such variables as peak electric demand and the wholesale price of electricity.

The 10-year average and 30-year normal^c are presented here as a point of reference for the variation in CDDs. The 10-year average is plotted in the middle of an 11-year period, averaging the five years previous to, and five years after, the plotted year. For example, the number plotted on the graph at 2003 is the average of 1998 through 2008. The 10-year average is not plotted for 2009 through 2012 because these averages cannot yet be calculated.

The 10-year average is plotted using CDD data from the National Climate Data Center. The NCDC revised its method of calculating CDDs, so the average is slightly different than shown in previous editions of this book.



Month	April ^b	May	June	July	August	September	October ^b	Total
Normal	4	23	108	194	155	51	5	538
1980	9	34	71	218	156	27	0	515
1985	31	28	60	185	98	103	0	505
1990	32	3	120	176	164	99	4	598
1995	0	8	223	273	310	47	5	866
2000	0	37	88	136	154	53	5	473
2005	3	4	211	228	200	119	32	797
2010	8	59	110	285	278	36	2	778
2011	1	27	94	336	188	48	9	703
2012	15	59	200	393	185	59	1	912

^a Population-weighted cooling degree days are derived by multiplying the number of 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).

^b Includes March for the years 2001 and 2007. For 1990, the October column also includes November.

^c The 30-year normal runs from 1981 to 2010 and is developed by the National Oceanographic and Atmospheric Agency (NOAA).

Source: Wisconsin State Energy Office, degree day data based on daily data from the University of Wisconsin-Madison, State Climatology Office (<http://www.aos.wisc.edu/~sco/>) (1970-2012) and from the National Oceanographic and Atmospheric Administration (<http://www.nws.noaa.gov/climate/>) (1970-2012).

2012 CDD
69.4%
ABOVE
THE 30-YEAR
NORMAL

Using population-weighted^a cooling degree days (CDD) as an index, the summer of 2012 was warmer than the summer of 2011, with 29.7 percent more cooling degree days. In 2012, the number of cooling degree days (912) was 69.4 percent above the 30-year normal (538).

The CDD data in this publication is weighted by population to better illustrate the connection between degree days and energy consumption.

In 2012, the number of CDDs increased because the summer was warmer than 2011. 2008 and 2009 represented a slight departure from a trend since 2005 of hotter summers with more CDDs.

2011 Wisconsin Cooling Degree Days, by Zone and Month

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
January	0	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0	0	1	1	1
May	0	6	15	9	14	22	16	18	51	46	28	27
June	16	55	69	63	87	71	115	89	139	145	84	94
July	221	256	297	271	277	320	306	301	355	368	364	336
August	112	46	98	112	151	139	150	159	199	200	247	188
September	20	16	25	40	42	33	50	44	46	44	62	48
October	16	4	7	21	6	6	18	15	13	10	7	9
November	0	0	0	0	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0	0	0	0	0
Total	385	383	511	516	577	591	655	626	803	814	793	703

^a Population-weighted statewide average, based on 2010 census.

Source: Wisconsin State Energy Office, degree day data based on daily data from the University of Wisconsin-Madison, State Climatology Office (<http://www.aos.wisc.edu/~sco/>) and from the National Oceanographic and Atmospheric Administration (<http://www.nws.noaa.gov/climate/>) (1970-2012).

2012 Wisconsin Cooling Degree Days, by Zone and Month

Month	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	State ^a
January	0	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0	0
March	17	2	8	7	4	12	14	20	27	26	11	14
April	0	0	0	0	0	0	0	0	0	1	1	1
May	22	12	36	42	33	51	56	67	86	81	59	59
June	74	73	143	98	118	199	166	160	207	228	235	200
July	199	170	270	298	312	352	378	391	441	455	428	393
August	96	48	96	131	120	131	159	176	212	202	237	185
September	26	20	35	47	37	41	57	59	75	72	70	59
October	0	0	0	0	0	0	0	1	5	3	0	1
November	0	0	0	0	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0	0	0	0	0
Total	434	325	588	623	624	786	830	874	1,053	1,068	1,041	912

^a Population-weighted statewide average, based on 2010 census.

Source: Wisconsin State Energy Office, degree day data based on daily data from the University of Wisconsin-Madison, State Climatology Office (<http://www.aos.wisc.edu/~sco/>) and from the National Oceanographic and Atmospheric Administration (<http://www.nws.noaa.gov/climate/>) (1970-2012).