



Appliances Sheet: Carbon Dioxide Emissions (lbs) per Month

Tailored for North Dakota and Minnesota -providing an estimate

Appliance	Watts	Average Hours Used Per Month	Kilowatt hours Used Per Month	*Pounds of CO2 Emissions per month	
				ND 2.24lbs per kWh	MN 1.52 lbs per kWh
Heating/Cooling					
Air Conditioner (Central)	6000	90	540	1209.6	820.8
Air Conditioner (Window Unit)	1100	90	99	221.76	150.48
Fan - ceiling	80	150	12	26.88	18.24
Fan - portable	115	150	17.25	38.64	26.22
Fan - ceiling (ENERGY STAR on high speed)	65	150	9.75	21.84	14.82
Fan - ceiling (ENERGY STAR on low speed)	8	150	1.2	2.688	1.824
Electric Baseboard 4 foot	1000	150	150	336	228
Electric Baseboard 8 foot	2000	150	300	672	456
Electric Furnace	15000	150	2250	5040	3420
Electric Furnace	10000	150	1500	3360	2280
Electric Portable Space Heater	1500	150	225	504	342
Electric Portable Space Heater	1000	150	150	336	228
Electric Water Heater	4500	75	337.5	756	513
Lighting					
Flourescent Lamp	27	150	4.05	9.072	6.156
Flourescent Lamp	20	150	3	6.72	4.56
Flourescent Lamp	15	150	2.25	5.04	3.42
Flourescent Touchiere	63	150	9.45	21.168	14.364
Flood Light (Exterior)	150	150	22.5	50.4	34.2
Halogen Torchiere	300	150	45	100.8	68.4
Incandescent Lamp	100	150	15	33.6	22.8
Incandescent Lamp	75	150	11.25	25.2	17.1
Incandescent Lamp	60	150	9	20.16	13.68

	Watts	Average Hours Used Per Month	Kilowatt hours Used Per Month	Pounds of CO2 Emissions per month	
				ND 2.24lbs per kWh	MN 1.52 lbs per kWh
Small Appliances					
Blanket Electric (8 hours per day, 50% cycle)	150	120	18	40.32	27.36
Christmas/holiday light strand of 100 older bulbs, 6 watts per strand	600	150	90	201.6	136.8
Christmas/holiday light strands mini lights, 4 watts per strand	40	150	6	13.44	9.12
Christmas/holiday light strands new LED lights, 0.8 watts per strand	8	150	1.2	2.688	1.824
Coffee Maker (Brew & Keep warm)	350	30	10.5	23.52	15.96
Coffee Maker (Brew & Turn off)	1500	5	7.5	16.8	11.4
Compact Disc Player	50	120	6	13.44	9.12
Hair Dryer - Hand held	1500	3.5	5.25	11.76	7.98
Iron	1000	5	5	11.2	7.6
Toaster	1000	3	3	6.72	4.56
Vacuum Cleaner	1000	5	5	11.2	7.6
Medium Appliances					
Dehumidifier (runs constantly)	400	720	288	645.12	437.76
Dehumidifier (cycles 50% of time)	400	360	144	322.56	218.88
Large Appliances					
Clothes Dryer Electric	4600	20	92	206.08	139.84
Clothes Washer (20 loads)					
Standard (Cold/Cold)	N/A	10	3.6	8.064	5.472
Standard (Warm/Cold)*	N/A	10	42.2	94.528	64.144
Efficient (Cold/Cold)	N/A	10	2.8	6.272	4.256
Efficient (Warm/Cold)*	N/A	10	11.4	25.536	17.328
*Includes cost of heating water					
Dishwasher (excludes water use)					
Air Dry	200	25	5	11.2	7.6
Heat Dry	1200	25	30	67.2	45.6
Refrigerator/Freezer (pre 1992)	600	215	129	288.96	196.08
Refrigerator/Freezer (ENERGY STAR)	800	117	93.6	209.664	142.272



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Electronics	Watts	Average Hours Used Per Month	Kilowatt hours Used Per Month	Pounds of CO2 Emissions per month	
				ND 2.24lbs per kWh	MN 1.52 lbs per kWh
Radio - Portable	20	120	2.4	5.376	3.648
Stereo - Component	200	120	24	53.76	36.48
Television					
Standard small (CRT tube)	100	120	12	26.88	18.24
Standard large (CRT tube)	150	120	18	40.32	27.36
Projection (average size & wattage)	220	120	26.4	59.136	40.128
Flat Screen (average size & wattage)	150	120	18	40.32	27.36
Plasma (average size & wattage)	350	120	42	94.08	63.84
Computer (wattage varies with different units and workloads)					
Desktop (on 2 hours; off 22 hours/day)	65	60	3.9	8.736	5.928
Desktop in sleep mode (22 hours)	15	660	9.9	22.176	15.048
Desktop (on 8 hours/day)	65	240	15.6	34.944	23.712
Desktop in sleep mode (16 hours/day)	15	480	7.2	16.128	10.944
Laptop (on 2 hours/day)	15	60	0.9	2.016	1.368
Laptop (on 8 hours/day)	15	240	3.6	8.064	5.472
Laptop (on 16 hours/day)	15	480	7.2	16.128	10.944
Computer monitor, 15" CRT (on 2 hours/day)	35	60	2.1	4.704	3.192
Computer monitor, 15" CRT (on 8 hours/day)	35	240	8.4	18.816	12.768
Computer monitor, 15" CRT (on 16 hours/day)	35	480	16.8	37.632	25.536
Computer monitor, 17" CRT (on 2 hours/day)	80	60	4.8	10.752	7.296
Computer monitor, 17" CRT (on 8 hours/day)	80	240	19.2	43.008	29.184
Computer monitor, 17" CRT (on 16 hours/day)	80	480	38.4	86.016	58.368
Computer monitor, 17" LCD (on 2 hours/day)	35	60	2.1	4.704	3.192
Computer monitor, 17" LCD (on 8 hours/day)	35	240	8.4	18.816	12.768
Computer monitor, 17" LCD (on 16 hours/day)	35	480	16.8	37.632	25.536
Computer system left on: PC, monitor, printer all left on with no sleep mode (22 hours/day)	150	660	99	221.76	150.48
Computer system left on (8 hours/day)	150	240	36	80.64	54.72
Computer system left on (16 hours/day)	150	480	72	161.28	109.44

Source: Wattages and average usage from Clallam County PUD website and Duke Energy Electrical Appliance Operating Cost List. Average household: 4 members. Please note that wattage for your individual appliances may vary.

*From Energy Information Administration: Updated State-and Regional-level Greenhouse Gas Emission Factors for Electricity (March 2002) <http://www.eia.doe.gov/oiaf/1605/ee-factors.html> or <http://www.eia.doe.gov/pub/oiaf/1605/cdrom>,



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To estimate CO2 emissions for appliances follow these steps.

First find out the wattage of the appliance (which is usually listed on the appliance)

Example: a 1800 watt clothes dryer

1. Convert watts to kilowatts by dividing wattage by 1000

$1800/1000=1.8$ kilowatts

2. Figure out Kilowatt hours per year usage

Multiply kilowatts by hours used a day (1 hour) by frequency per week (2 times) by number of weeks per year (52 weeks)

$1.8 \times 1 \times 2 \times 52 = 187.2$ kilowatt hours/year

3. Figure out pounds of CO2 emissions per year

Kilowatt hours a year multiplied by 2.24 for North Dakota* (for Minnesota, multiply by 1.5 instead)

$187.2 \times 2.24 = 419.33$ lbs per year

4. Figure out tons of CO2 emission per year

CO2 lbs per year divided by 2000

$419.33/2000= .209$ tons per year

5. To calculate cost of appliance per year:

Multiply Kilowatt hours/year by utility rate.

You can use the above to calculate reduction of CO2 emissions and cost savings.

(updated 03/25/08)

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*In partnership with the Episcopal Diocese of North Dakota Environmental Stewardship Committee,
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