

Calculation of MONTHLY HEATING DEMAND based on Local Heating Degree Days

West Gardiner ME - HDD for the last 3 years

Customer: Ken Cheng

Address: ?

Location: West Gardiner ME

Square Footage: **3,300** Square Footage of the home

#2 Heating oil:	\$3.67 /gallon	\$0.97 /Liter
wood pellets:	\$225 /sh ton	\$250 /mTON

Gallons of oil used: **1,151** 4357 Liter of oil used from Jan <> Dec

Cost of oil: **\$4,224** cost for oil from Jan <> Dec

BTUs from oil: 159,989,000 46890 kW (#2 Heating oil has 138,000 BTU/gallon)

Lbs of wood pellets: 19,999 8999 Kg based on 8000 BTU/Lbs of wood pellets real heating value

Short Tons of pellets: 10.00 9.00 Tons of pellets

500 Bags of pellets

62 Fills of 8 bags of pellets into the BioWIN dayhopper

\$2,250 Cost of wood pellets

Estimated savings: **\$1,974** cost savings per year with wood pellets

47%

Add efficiency gain: **15%** Efficient pellet boiler <> inefficient oil boiler

62%

\$2,608 overall cost savings

Month	HDD	% heat	Oil gallons		Oil BTU's		24h			12h	
							BTU/day	BTU/24h	BTU/12h	BTU/SF	BTU/SF
3/1/2011	1,048	0.15	172		23,722,705	BTU	790,757	32,948	65,896	10.0	20.0
4/1/2011	654	0.09	107		14,804,055	BTU	493,468	20,561	41,122	6.2	12.5
5/1/2011	352	0.05	58		7,967,932	BTU	265,598	11,067	22,133	3.4	6.7
6/1/2011	163	0.02	27		3,689,696	BTU	122,990	5,125	10,249	1.6	3.1
7/1/2011	24	0.00	4		543,268	BTU	18,109	755	1,509	0.2	0.5
8/1/2011	44	0.01	7		995,991	BTU	33,200	1,383	2,767	0.4	0.8
9/1/2011	151	0.02	25		3,418,062	BTU	113,935	4,747	9,495	1.4	2.9
10/1/2011	458	0.07	75		10,367,366	BTU	345,579	14,399	28,798	4.4	8.7
11/1/2011	676	0.10	111		15,302,050	BTU	510,068	21,253	42,506	6.4	12.9
12/1/2011	1,072	0.15	176		24,265,973	BTU	808,866	33,703	67,405	10.2	20.4
1/1/2012	1,292	0.18	HDD	212	29,245,931	BTU	974,864	40,619	81,239	12.3	24.6
2/1/2012	1,083	0.15	7017	178	1,151 24,514,971	BTU	817,166	34,049	68,097	10.3	20.6
3/1/2012	836	0.12	137		18,918,445	BTU	630,615	26,276	52,551	8.0	15.9
4/1/2012	579	0.08	95		13,102,607	BTU	436,754	18,198	36,396	5.5	11.0
5/1/2012	303	0.04	50		6,856,805	BTU	228,560	9,523	19,047	2.9	5.8
6/1/2012	166	0.02	27		3,756,533	BTU	125,218	5,217	10,435	1.6	3.2
7/1/2012	23	0.00	4		520,484	BTU	17,349	723	1,446	0.2	0.4
8/1/2012	26	0.00	4		588,373	BTU	19,612	817	1,634	0.2	0.5
9/1/2012	222	0.03	36		5,023,798	BTU	167,460	6,977	13,955	2.1	4.2
10/1/2012	420	0.06	69		9,504,482	BTU	316,816	13,201	26,401	4.0	8.0
11/1/2012	887	0.13	145		20,072,561	BTU	669,085	27,879	55,757	8.4	16.9
12/1/2012	1,104	0.16	181		24,983,210	BTU	832,774	34,699	69,398	10.5	21.0
1/1/2013	1,324	0.19	HDD	217	29,961,748	BTU	998,725	41,614	83,227	12.6	25.2
2/1/2013	1,129	0.16	7019	185	1,151 25,548,953	BTU	851,632	35,485	70,969	10.8	21.5
3/1/2013	977	0.13	145		20,078,241	BTU	669,275	27,886	55,773	8.5	16.9
4/1/2013	659	0.09	98		13,543,051	BTU	451,435	18,810	37,620	5.7	11.4
5/1/2013	354	0.05	53		7,275,023	BTU	242,501	10,104	20,208	3.1	6.1
6/1/2013	114	0.01	17		2,342,804	BTU	78,093	3,254	6,508	1.0	2.0
7/1/2013	28	0.00	4		575,426	BTU	19,181	799	1,598	0.2	0.5
8/1/2013	57	0.01	8		1,171,402	BTU	39,047	1,627	3,254	0.5	1.0
9/1/2013	208	0.03	31		4,274,590	BTU	142,486	5,937	11,874	1.8	3.6
10/1/2013	454	0.06	68		9,330,114	BTU	311,004	12,958	25,917	3.9	7.9
11/1/2013	888	0.11	132		18,249,210	BTU	608,307	25,346	50,692	7.7	15.4
12/1/2013	1,358	0.18	202		27,908,139	BTU	930,271	38,761	77,523	11.7	23.5
1/1/2014	1,424	0.18	HDD	212	29,264,499	BTU	975,483	40,645	81,290	12.3	24.6
2/1/2014	1,208	0.16	7729	180	1,151 24,825,502	BTU	827,517	34,480	68,960	10.4	20.9

West Gardiner ME

Heating Degree Days 3-year average: 2011, 2012, 2013 & 2014

15 kW BioWIN100

	HDD	%	Oil consumption	Oil BTU's	BTU/day	BTU/24h	BTU/16h	BTU/12h
Mar average	954	0.13	151 Gal 573 L	20,906,464 BTU 6,127 kW	674,402 197.7	28,100 8.2	42,150 12.4	56,200 16.5
Apr average	631	0.09	100 Gal 379 L	13,816,571 BTU 4,049 kW	493,449 144.6	20,560 6.0	30,841 9.0	41,121 12.1
May average	336	0.05	53 Gal 202 L	7,366,586 BTU 2,159 kW	237,632 69.6	9,901 2.9	14,852 4.4	19,803 5.8
Jun average	148	0.02	24 Gal 89 L	3,263,011 BTU 956 kW	108,767 31.9	4,532 1.3	6,798 2.0	9,064 2.7
Jul average	25	0.00	4 Gal 15 L	546,392 BTU 160 kW	17,626 5.2	734 0.2	1,102 0.3	1,469 0.4
Aug average	42	0.01	7 Gal 25 L	918,589 BTU 269 kW	30,620 9.0	1,276 0.4	1,914 0.6	2,552 0.7
Sep average	194	0.03	31 Gal 116 L	4,238,816 BTU 1,242 kW	136,736 40.1	5,697 1.7	8,546 2.5	11,395 3.3
Oct average	444	0.06	71 Gal 267 L	9,733,987 BTU 2,853 kW	314,000 92.0	13,083 3.8	19,625 5.8	26,167 7.7
Nov average	817	0.11	130 Gal 490 L	17,874,607 BTU 5,239 kW	595,820 174.6	24,826 7.3	37,239 10.9	49,652 14.6
Dec average	1,178	0.16	186 Gal 705 L	25,719,107 BTU 7,538 kW	829,649 243.2	34,569 10.1	51,853 15.2	69,137 20.3
Jan average	1,347	0.19	214 Gal 809 L	29,490,726 BTU 8,643 kW	983,024 288.1	40,959 12.0	61,439 18.0	81,919 24.0
Feb average	1,140	0.16	181 Gal 685 L	24,963,142 BTU 7,316 kW	805,263 236.0	33,553 9.8	50,329 14.8	67,105 19.7
	7,255	1.00		1151				

51180 BTU/hr Nominal

55% Output

40%

19%

9%

1%

2%

11%

26%

49%

68%

80%

66%

Description: Fahrenheit-based heating degree days for a base temperature of 65F

Source: www.degreedays.net (using temperature data from www.wunderground.com)

Accuracy: Estimates were made to account for missing data: the "% Estimated" column shows how much each figure was affected (0% is best, 100% is worst)

Station: AUGUSTA STATE AIRPORT, ME, US (69.80W,44.32N)

Station ID: KAUG

