



energy conservation services corp.

Fuel Reduction Program

Conducted at:

150 Crown Street

Gas Fired Boilers
Providing Heat and Domestic Hot Water



Cost of Fuel:

To normalize the cost of fuel a rate of \$1.01 per therm was used for the entire period. In this manner we are making equalized comparisons and removing the cost as a variable.

Heating Degree Days:

In order to ensure that a reasonable comparison is done from year to year ECS looks to NOAA (National Oceanic & Atmospheric Administration) for what are referred to as "heating degree days" A degree-day compares the outdoor temperature to a standard of 65° Fahrenheit (F); the more extreme the temperature, the higher the degree-day number. Thus, degree-day measurements can be used to describe the effect of outdoor temperature on the amount of energy needed for space heating or cooling.

Cold days are measured in heating degree-days. For a day with a mean temperature of 40° F, 25 heating degree-days would be recorded (65°F base – 40°F = 25 HDD). Two such cold days would result in a total of 50 heating degree-days for the 2-day period. By studying degree-day patterns in your area, you can evaluate the increases or decreases in your heating or air-conditioning bills from year to year.

This is the easiest way to compare temperatures from year to year allowing us to make adjustments in our analysis to demonstrate savings to our customers. The chart below shows the heating degree days for the calendar years of 2008/2009. With a difference of only 182 degree days between the years the variance is 4.5%. It was actually slightly warmer in 2008 than in 2009 and this would mean that in the period the IntelliCon was installed (2009) should use more fuel.

Heating Degree Days

	2009	2008	Normal
June	27	0	16
July	0	0	1
August	0	0	1
September	23	15	40
October	256	252	249
November	395	547	524
December	868	802	836
January	1114	848	1008
February	780	810	861
March	713	683	713
April	360	321	392
May	111	148	136
TOTAL	4647	4426	4777



The Savings:

In 2008 the boiler used 93,905 Therms of Natural Gas. In 2009 it used only 76,364 Therms of gas.

No IntelliCon Installed

Billing Period		Monthly Therms	HDD	Normal HDD	HDD Factor	Normalized Therms	Cost @ \$1.01 Therm
10/23/2008	11/21/2008	7,955	547	524	0.958	7,621	\$ 7,696.72
11/21/2008	12/23/2009	15,989	802	836	1.042	16,667	\$ 16,833.51
12/23/2008	1/26/2009	18,974	848	1008	1.189	22,554	\$ 22,779.54
1/26/2009	2/24/2009	14,949	810	861	1.063	15,890	\$ 16,049.14
2/24/2009	3/24/2009	14,305	683	713	1.044	14,933	\$ 15,082.66
3/24/2009	4/23/2009	10,235	321	392	1.221	12,499	\$ 12,623.80
4/23/2009	5/22/2009	3,639	148	136	0.919	3,344	\$ 3,377.39
Annual Totals		86,046	4,159	4,470	1.075	93,508	\$ 94,442.75

IntelliCon Installed and On

Delivery Date		Monthly Therms	HDD	Normal HDD	HDD Factor	Normalized Therms	Cost @ \$1.01 Therm
10/23/2009	11/20/2009	6,440	395	524	1.327	8,543	\$ 8,628.62
11/20/2009	12/22/2009	12,170	868	836	0.963	11,721	\$ 11,838.55
12/22/2009	1/25/2010	17,099	1114	1008	0.905	15,472	\$ 15,626.71
1/25/2010	2/23/2010	15,944	780	861	1.104	17,600	\$ 17,775.72
2/23/2010	3/23/2010	11,171	713	713	1.000	11,171	\$ 11,282.71
3/23/2010	4/22/2010	5,897	360	392	1.089	6,421	\$ 6,485.39
4/22/2010	5/20/2010	4,436	111	136	1.225	5,435	\$ 5,489.45
Annual Totals		73,157	4,341	4,470	1.030	76,364	\$ 77,127.15

Reduced Therms
Reduced Cost

17,144
\$17,315.61

Savings as a Percentage

18.334%

As a result of the installation of the IntelliCon Fuel Economizer the amount of fuel was significantly reduced. In fact the reduction was **18.33%**. If the IntelliCon had not been installed the fuel consumption would have been similar to that in 2008 as the climate for the season (heating degree days) was within 0.25%. If we make the price per unit of measure the same, using the average cost for the calendar year we can then compare the two years.

Based on those savings the Return on Investment (ROI) for this project was 4.5 months.

The IntelliCon-CHS allowed the owners to realize savings of over \$17,315.61.