MaxR100™
Advanced Intermetallic Compound
Home Heat Pump Treatment

Bill's house in Union Mills, North Carolina is built in a 3.6 acre plot that is mostly left in the natural state. The house is two floors and 3,300 square feet of cooling/heating area complete with double pane windows. Exterior walls are two by sixes with R22 fiberglass insulation. Upper floor ceiling insulation is R39 fiberglass that is 12 inches thick. The house is shaded in the morning and the evening, but, of course is not shaded when the sun is overhead within about 30 degrees of directly overhead.

The heat pump is a 4 ton AMANA Model RHE48A2A, Manufacturer # P1217406C, Serial # 9612128361. The electric meter used for data acquisition was an ELSTER Type A1D, Class 200, 3 Wire, 240 Volt, Form 2S solid state device, formerly known as ABB. The meter has a KsubH of 7.2 and 24 pulses per revolution which renders a pulse rate of .0003 kWh per pulse. The pulse was supplied to a Model 300 SENTRY solid state recorder which stored the data in 15 minute intervals that coincides with the data used by the electricity supplier to the house.

The nearest weather reporting station to Union Mills, North Carolina is Rutherford County Airport in Rutherfordton, North Carolina which is 1079 feet above sea level and supplied the temperature data used in this report. The same basic sea level measurement is consistent with general property in the immediate area.

The MAXR 100 was supplied by Trans Bio Energy Company and was installed by a local qualified HVAC contractor. Two ounces of MAXR 100 was installed on August 03, 2004. The electrical data was sent to Fuller Instruments for observation and analysis. A number of graphs and data summary from the Fuller Instruments analysis program are attached.

The data summary sheet shows a daily compilation of temperatures and usage of electrical power. The average temperature for the day minus 65 is by definition CDD (Cooling Degree Days). Multiple line representation of compiled temperature and consumption data is attached for viewing.

The bar graph for kW shows little change after treatment with MAXR 100, but the graph for kWh shows noticeable change. This is typical for past treatments of HVAC units. The Average kW divided by Maximum kW is known as Load Factor for a given day. A means of referencing performance of cooling equipment by dividing kWh total for the day by the sum of CDD plus thermostat setting is also shown in the data summary and a graph including load factor.

The two graphs below with Before and After Treatment demonstrate the different consumption patterns after the MAXR 100 is applied to HVAC equipment. These are representative of the days of choice during the period.

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Shown on the summary sheet are three different validations for MAXR 100 applications:

Average Per Day	kWh/(CDD + Thermostat Setting)	Load Factor	kWh/Day
20 Jul - 04 Aug	0.314	33.524%	28.91
05 Aug - 25 Aug	0.216	22.214%	18.53
Difference (period)	0.098	11.310%	10.38
% Reduction	31.174%	33.738%	35.903%
CDD = Cooling Degree Days			

The cost per kWh was calculated by taking Total Cost for period and dividing by Total kWh for period:

Period Billed	Cost/kWh
12/15 to 01/19	$0.085
01/19 to 02/16	$0.086
02/16 to 03/15	$0.088
03/15 to 04/16	$0.089
04/16 to 05/17	$0.090
05/17 to 06/15	$0.087
06/15 to 07/16	$0.088
07/16 to 08/16	$0.089

Reducing consumption by 10 kWh per Day at $0.088 per kWh, a savings of 10 X .088 X 30 per month or $26.40 is realized.

The heat pump will realize a reduction of kWh usage for six to eight months in a typical year. A short part of a year makes for a complete return on investment. **Payback is less than six months.**

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