

# Home Energy Worksheet



<b>Step 1: Energy Intensity</b>	Gas Used in 12 months (ccf)	BTUs per CCF	BTU	Square Feet	HDD	HHI
		X 100,000	=	/	/ 6909	=

This number, HHI, is your home heating index, it is a measure of your energy intensity. Homes with an HHI of 2-8 are pretty efficient with little room for improvement, 9-13 is average with some room for improvement, 14-20 is inefficient, over 20 is a very inefficient older home with many "opportunities"

<b>Step 2: Attic Insulation</b>	Type of Insulation	R Value/Inch	Avg Depth	Total R-Value	Target R Value	Addl Req.
			x	=		

Make sure your insulation is installed properly, vapor barrier on warm in winter side, no gaps, voids, or compression. Full coverage and adequate clearance around chimneys and light fixtures. Typically cellulose may be installed over anything except blown fiberglass. Above R-50 is no value.

<b>Step 3: HVAC</b>	Furnace Efficiency	A/C SEER	Ducts Sealed?	Insulated Ducts?	Clean Filter?	Prog. T-Stat

Don't be afraid to get to know your furnace. If the efficiency is not listed, you may compute it by dividing the max output by the max input BTUs. If your furnace is 80% or less, it may be cost effective to upgrade. Above 90% may not be effective to upgrade. A/C systems of 10 SEER or less are inefficient as well. Upgrading to a 13-19 SEER unit will have a long payback period but is still cost effective. Duct leakage is very wasteful lowering your delivered efficiency by as much as 30%, seal ducts with mastic or foil tape. Insulate ducts to R-5 in unconditioned spaces. Clean or replace your filter every three months or as needed. Thermostat setbacks save money, programmable t-stats make it more convenient. If you decide to buy a new system, make sure your new unit is sized to Manual "J" specs. It will likely need to be smaller now that your home is more efficient.

<b>Step 3: Water Heater</b>	Energy Factor/Efficiency	Flushed?	Temperature?	Extra Insulation	Cold Inlet Trap	Insulated Pipes?

If your water heater is more than 15 years old, replace it. Younger than this and you should consider replacing the ANODE ROD. If it makes a gurgling noise when heating new water, there is excess sediment on the bottom and it needs flushed. Temperature should be no more than 120 degrees F. A water heater blanket provides additional insulation on older units will save about \$15 per year. Electric water heaters should be isolated from slab floors. Electricity is also a very expensive fuel for heating water. The same size gas water heater will cost less than half as much to run. If the cold inlet is warm more than 4 feet from the top of the water heater you should install a heat trap to stop the convective current. Insulate the hot water pipes, especially long runs. On-Demand water heaters are expensive to install, but may be economical for small, new homes or point source water heating.

<b>Step 4: Appliances</b>	Amps x Volts (120?) = Watts	/1000 = Kwh	x Hours Used	x Rate per Kwh	=cost to run	Comparison
	Refrigerator					
	Dryer (electric)					
	100 Watt Incandescent Bulb	100	0.1	1200	0.092	\$11.04
	23 Watt CFL (same lumens)	23	0.023	1200	0.092	\$2.54
	Misc Appliance					

If you don't know your fridge electric use, base it on age. If you have more than one fridge, evaluate whether you really need it. Pre 1980 don't even ask, get a new one because it uses 2200+ Kwh, if it was made in the 1980's use 1619 Kwh, 1990's use 1146 Kwh, 2000-2003 675 Kwh, after 2003 look for the yellow energy saver tag. If your dryer is electric, use 4500 Watts or wattage listed on the sticker. Check your dryer vent and clean it with a long brush. The vent should never be made of plastic or vinyl; this is a tremendous fire hazard and a CO hazard if your dryer uses natural gas or propane.