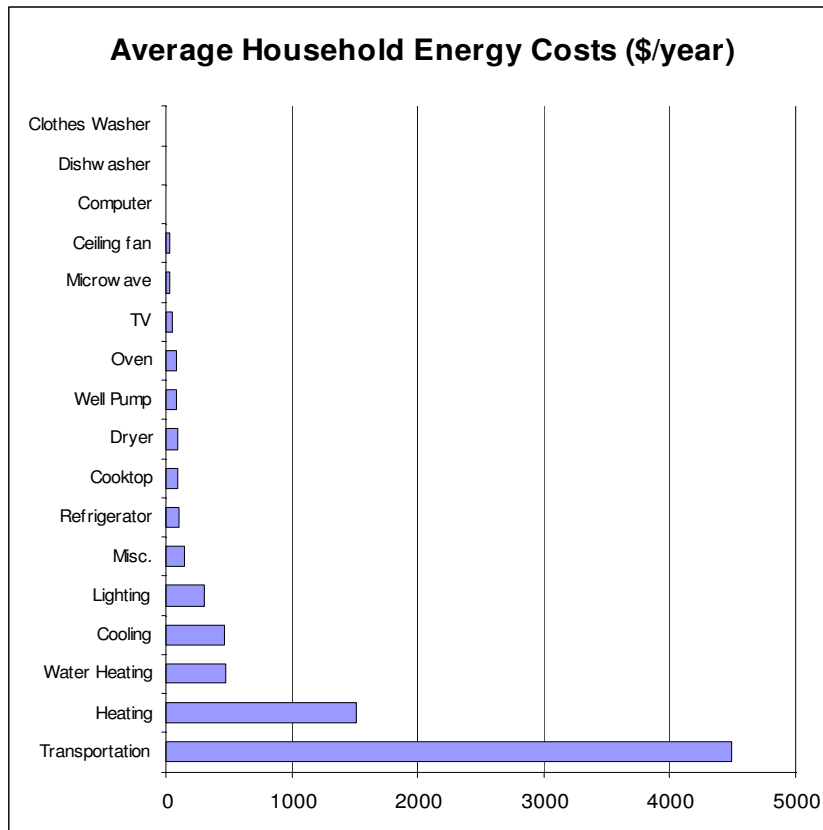




Save Money This Winter On Heating Costs

Well, here we are enjoying the heart of winter in Nevada County. I'm looking out the window from my home watching the snow fall, thinking of ways to help my neighbors stay warm without breaking the bank. About 20% of an average Nevada County household's annual energy costs are spent keeping us warm in winter, with another 5% spent on heating our water for domestic use (see chart). What are some of the best ways to, most cost-effectively, reduce heating costs this winter?



Add Insulation. In performing energy audits of homes in our area I've found a large percentage of homes still have very low levels of attic insulation. The recommended insulation "R-value" for our climate is R-38. How much R-value do you currently have?

If you have just 3.5 inches of fiberglass you have R-11 insulation and, at this low level, you'll qualify for a PG&E rebate if you add insulation. If you have 6-7 inches of fiberglass you have R-19 and at 10" you have R-30. While (un-faced) fiberglass insulation can be carefully laid over your existing insulation, loose fill insulation such as cellulose is a little cheaper and will better seal in all the nooks and crannies, lowering air leakage.

Seal The Leaks. The average home leaks enough air to completely exchange the indoor air with the outdoor air every two hours. When the furnace fan is on this exchange takes just one hour and, with the furnace fan on and all the interior doors closed, the exchange takes just 40 minutes!

Most homeowners don't realize that their ducted system is likely just 60-65% efficient when it comes to delivering heated or cooled air. If your furnace is 80% efficient, this means your *system* efficiency could be just 48% ($0.60 \times 0.80 = 0.48$). Both the home and, when one exists, the ducted air distribution are classic energy-wasters when it comes to heat loss from air leakage.

Sealing air leaks in the home and duct system is a smart and cost-effective way to save energy. In addition to Sustainable Energy Group there is an ever-growing number of Building Performance Contractors in Nevada County capable of measuring your leakage, sealing the leaks, and measuring the impact of the sealing of your home and duct system.

PG&E also offers rebates for home weatherization and duct sealing work. In some cases, homeowners might want to do this work on their own. The Department of Energy's Energy Star program (see link below) has a very helpful fact sheet available to homeowners for this purpose.

Heat Your Home Efficiently Many of the homes we see during an audit have very old heating units, approaching the end of their "useful life" If your furnace is more than fifteen years old consider replacing it with a new, energy-efficient model. The replacement cost might be \$2,200 to \$3,700 but the savings could be \$650 to \$1,100 per year.

A programmable thermostat is another recommended option. Costing around \$100, the savings can pay back the cost within a year.

For those heating with wood, how old is your woodstove? Today's new EPA-certified stoves are far more efficient and less polluting than older units. Contact one of Nevada County's many purveyors of wood heating products for more information.

Heat Your Water Efficiently or With The Sun Water heaters only last 12-15 years so there's a good chance yours may be nearing the end of its useful life. A lot of people ask us about options for replacing their existing heater. Instantaneous or “on-demand” units are gaining in popularity, but would one of these be best for you?

The answer to this question, like most energy option questions, begins with “it depends.”

Instantaneous heaters require a larger gas line and a larger (and more expensive stainless steel) flue. They are more susceptible to problems associated with hard water and they have more components prone to failure than a typical tank-type heater. They can supply inconsistent water temperatures in applications with low or varying water pressure (such as well and pressure-tank systems) and/or high simultaneous demands (ie, someone is taking a shower and the tub in another bath is turned on full blast). Unlike most tank-type water heaters, they also require power to operate.

Like most high-efficiency choices, the greater the use the more cost-effective a higher efficiency unit will be. There are mid-efficiency tank-type gas water heaters (Energy Factor of 0.61 to 0.63) available for just a few hundred dollars over a standard unit. Instantaneous heaters have Energy Factors of 0.80 to 0.85. High efficiency combination heaters, units designed to provide both space and water heating such as boilers and condensing water heaters, are rated with a different efficiency descriptor called a “CAE” (Combined Appliance Efficiency rating) ranging from 0.59 to 0.90; a CAE of 0.85 or higher is recommended. Again, keep in mind that the more energy you use the more justified you will be in investing in a higher efficiency unit.

Lastly, if you have a sunny site, solar water heating may be your most cost-effective option given the tax credits and rebates available today to help reduce the installation cost.

In any case, the savings from a more efficient heating unit can be a great investment opportunity. The cash flow (sum of costs and savings for a given year) can be positive from the first year forward and

the return on investment can be as high as 10-20% or more. And, in addition to being a great investment, these alternatives are great for the environment too!

For information on the PG&E insulation and weatherization rebates:

<http://www.pge.com/res/rebates/insulation/index.html>

For information on sealing and insulating your home yourself:

http://www.energystar.gov/ia/home_improvement/home_sealing/diy_color_100_dpi.pdf



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