

An eye on energy

Home energy monitors are great tools for savings

Will a home energy monitor save me money?

You've been tightening up your house to be more energy efficient. You've added insulation, caulked and sealed, bought more-efficient appliances and changed out the light bulbs to compact fluorescents. Still, your usage is higher than you'd like it to be. Is there some way to actually identify where your electricity is being used?

You bet. Home energy monitoring systems, ranging from a few hundred to thousands of dollars, will tell you exactly how much electricity a particular appliance or system uses. You can find reviews of models online and buy them online, at home improvement stores or from energy contractors and suppliers. Your cooperative may even have a recommendation for a monitor or even have monitors to purchase.

So what does your money buy you? Here are the three basic types of systems:

- **Individual appliance monitoring** — The simplest and least expensive system is a plug-in device that measures the electricity used by an individual appliance, such as your refrigerator or a computer; a group of appliances on a single circuit; or devices in a single room. Monitors such as P3 International's Kill A Watt allow you to measure how much electricity in kilowatt-hours that appliance or circuit uses daily, weekly, monthly and yearly. For a few hundred dollars, you can quickly identify the energy hogs in your home. But you won't get a big picture of your home's energy consumption.

- **Whole-house monitoring** — These systems, priced from under \$1,000 to about \$1,500, monitor your entire home's electricity usage. Some models attach to your electrical panel. Some plug into an outlet. Others are wireless. But generally they all tell you how much your usage is costing, and by switching off individual appliances or lights you can see the usage drop and the cost go down.

The Energy Detective (TED) is one example of a whole-house system in which the monitor is wired to the power cables coming into your house to record total electricity consumption. A study in Ontario, Canada, found that TED-like monitors encouraged families to reduce their electricity consumption by an average of 6.5 percent, according to www.mapawatt.com. EcoDog's FIDO Energy Monitor is another whole-house monitor worth checking into, as is PowerHouse

Dynamics' eMonitor. The eMonitor allows 12, 24, 36 or 48 circuits to be tracked simultaneously, depending on the system's size.

Blue Line Innovation's PowerCost Monitor is another whole-house device that attaches to your home's electric meter.

- **Smart monitoring** — The most sophisticated and costly monitoring systems allow you to monitor and also control energy use remotely. You can program when certain appliances are on and off, and you can monitor on a computer the virtually minute-by-minute energy use in your home.



Stove source.tif

These systems are at present probably of most interest to homeowners with the extra cash to pay for the system and the technical aptitude and interest to analyze the mountains of data produced and know what to do with it. In some parts of the country, smart monitoring systems work in conjunction with utilities.

How much is too much to pay for a home energy monitoring system? The experts at www.home-energy-metering.com suggest that if your average electric bill is \$200, your home energy monitor should be less than \$400. If your average bill is \$500, keep the monitor at under \$1,000. Either way, you should recoup your investment in less than two years.

You can find reviews of home energy monitoring systems at www.Amazon.com and other online sources. Your local cooperative may recommend a system or even offer a monitoring system to members.

Improve the efficiency of your holiday lights

Don't bust your energy budget during the holidays. Electric cooperatives often see a spike in energy use during the holiday period from Thanksgiving through New Year's that includes buying, entertaining and celebrating. Here's what you can do to avoid busting your energy budget:

Switch to LED holiday lights — Get rid of your strings of old C-7 or C-9 bulbs, which use about 7 watts of electricity per bulb, according to the Edison Electric Institute. Switching to strings of mini-lights will drop your usage to about .4 watts per bulb. But your best option is LED (light-emitting diode) lights, which produce very little heat and are 90 percent more efficient than incandescent lights; they use only .04 watts per bulb. Indoor LED lights can last up to 100,000 hours or more and outdoor LED lights up to 50,000 — virtually a lifetime of holiday lights.

Switch to fiber optics — The ultimate in energy efficiency is fiber optics. An artificial tree with fiber optic lighting built into it uses a single low-wattage LED bulb or incandescent bulb to light the entire tree.

Cook smart — Instead of the oven, use the microwave, crockpot, toaster oven or outdoor grill or oven. Avoid preheating, use the oven to cook multiple items at a time and match the pot to burner size.

Forget the fireplace — It may be tempting to stoke up the fireplace on Christmas Eve, but remember that most of that heat goes right up the chimney. In addition, without an intake air vent, which many houses don't have, the roaring fire in your fireplace will draw oxygen from cool outdoor air through leaks around doors and windows. That cool air can actually cause your thermostat to kick on the heat.

Go with gas — If you must have a fireplace, switch from wood to gas. According to National Grid, gas can be up to 80 percent efficient without the hassle of wood, ashes and smoke. By contrast, traditional masonry fireplaces are only 10 to 25 percent efficient.

Time your outdoor lights — Use timers to limit outdoor displays to six hours a night. According to the Alliance to Save Energy, leaving them on 24 hours a day could quadruple your energy costs.

Use a humidifier — It will make you feel warmer, and you can lower the thermostat setting to save energy and still be comfortable.

Lower the thermostat — When you've got company in

the house, lower the thermostat a few degrees — you won't notice the difference with those extra warm bodies. According to the Missouri Department of Natural Resources, you'll save about 1 percent energy use per degree of permanent setback. Now you have an excuse to wear that new wool sweater.

Go green for gifts — For the energy-conscious homeowner, there's no finer gift than a new Energy Star appliance that can cut related energy bills by 30 percent. Also consider giving energy-free gifts. A third option is to invest in rechargeable batteries.

Turn off the electronics — The U.S. Department of Energy says that 75 percent of electricity is consumed while



holiday light savings

a product is turned off. It makes sense to turn appliances and electronics off when not in use or put them on a surge protector and turn that off.

Cut kitchen energy use this holiday season

During the holidays, your stove, oven, refrigerator and dishwasher run overtime, keeping up with parties, treats for school and work and family get-togethers. Your energy bills can take a hit.

Follow these tips from the Consumer Energy Center for spending less on energy in the kitchen.

Oven

- There's no need to preheat the oven for long, slow-cooking meats and casseroles.
- Instead of opening the door to check what's cooking, turn on the oven light and check the status — opening the door lowers the temperature inside by as much as 25 degrees.
- Cook several items in the oven at the same time but leave

enough room for the heat to circulate.

- In an electric oven, turn the heat off several minutes before the food is fully cooked — the stored heat will finish the job. This works the same way for the stove top.
- If you use glass or ceramic pans, turn down the oven temperature 25 degrees.
- Self-cleaning ovens use less energy for normal cooking, but if you use the self-cleaning feature more than once a month, you'll use more energy than you save.

Stovetop

- Match the pan size to the heating element — a 6-inch pan on an 8-inch burner will waste more than 40 percent of the energy.
- Clean burners and reflectors provide better heating while saving energy. The best reflectors can save as much as one-third the energy used when cooking on top of the stove.
- Put a lid on the pot you're cooking in.

Other ways to cook

- Microwaves use 50 percent less energy than ovens and don't heat your kitchen. Use them to bake sweet potatoes, steam vegetables or heat leftovers.
- Small appliances such as slow cookers, electric skillet and toaster ovens use far less energy than conventional stoves and ovens. A crockpot will cook a whole meal for about 6 cents worth of electricity, on average.
- Roast or smoke your holiday meats outside — extend your summer and fall by cooking on the patio.

Refrigerator

- Keep the doors closed as much as possible. However, leaving them open for a longer period while you take out items is more efficient than opening and closing several times.
- Keep your refrigerator and freezer full. The mass inside will help the refrigerator recover each time the door is opened.
- Defrost foods inside the refrigerator.

Dishwasher

- Wash and dry dishes by hand. It's true a load of dishes in a dishwasher requires 37 percent less water than washing by hand, but if you fill the wash and rinse basins instead of letting the water run, you'll use half as much water as the dishwasher.
- Wash full loads only in your dishwasher, and skip the pre-rinse. If you need to rinse dishes first, use only cold water.
- Use the energy-saving cycles on your dishwasher whenever possible. Dishwashers that feature air power or overnight dry settings can save up to 10 percent of your dishwasher energy costs.

Put your energy use on vacation when you're away

Planning a holiday getaway? Whether it's a long weekend or an extended trip, make sure your home's energy use takes a

break as well. Unless you make conscious changes, however, you'll likely see little change in the amount of electricity you use. Here's how to put your energy use on vacation along with you:

- Set your programmable thermostat on "hold" or the "vacation" setting.
- If you use a regular thermostat, set it at a temperature that maintains a safe environment in the house: think about pipes, houseplants, fish/birds/other pets.
- Unplug computers, televisions, CD/DVD players, cordless phones, battery chargers and other electronics that use phantom electricity when not "on."
- Use timers to operate lights at night.
- Set the refrigerator to a warmer setting or even empty it completely if yours is an extended trip; leave the door open to prevent mildew from forming.
- Turn the water heater down to the lowest setting; some have "vacation" settings.
- Decide which clocks, heat tapes and security lights to unplug.

Revisiting insulation

In a recent article on preparing for winter, we recommended at least R-30 levels or higher of insulation for attics. That's still true, but here are more specific guidelines for the two climate zones in Missouri.

According to the North American Insulation Manufacturing Association at www.naima.org, northern Missouri falls in Zone 5 and the rest of Missouri in Zone 4. For both Zones 5 and 4, recommended insulation levels for attics are R-38 to R-60. Although NAIMA's climate map shows the Bootheel region in Zone 4, some might say it belongs in Zone 3, where R-30 to R-60 levels are recommended.

For all zones in Missouri, R-13 to R-15 are recommended levels for wall cavity insulation. For floors, recommendations are R-25 to R-30 for Zones 4 and 5 and R-25 for Zone 3.

Missouri One Call Providing an essential service

1-800-DIG RITE or 811 or www.mo1call.com

Do you want to stay safe? Avoid expensive damages? If so, it is essential to use the Missouri One Call System to notify the utilities of your work before every type of digging project: landscaping your yard, installing a culvert, building a fence or even something as simple as installing a mailbox.

Notifying Missouri One Call before beginning any type of excavation will allow the utilities to mark their underground facilities, permitting the excavation to safely proceed.

Damaging an underground line can result in injuries, expensive repair costs, legal fees and outages. Nationwide, an underground utility line is damaged by digging once every three minutes. One out of every three facilities damaged is the result of not notifying the One Call center to have the facilities marked prior to digging.

Using the Missouri One Call System is free, and you can process your request 24 hours a day, 7 days a week. It only takes a few minutes to complete the process of notifying the

utilities of your intent to dig. The utilities are then allowed three working days to respond and mark their facilities.

Notifying the utilities is easy. Here's how the Missouri One Call System works:

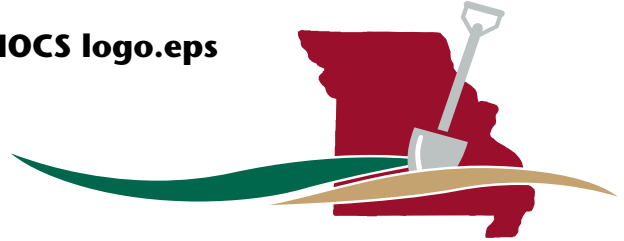
1. Three working days before you begin your work, call 1-800-DIG-RITE or 811 or go online to www.mo1call.com to place your locate request.
2. Our operators will map the dig site from excavator information and notify the utilities that have facilities in the area.
3. The utilities will respond by marking their facilities or notifying you that they have no facilities at the dig site.
4. The utilities will mark the facilities that they own, usually up to the meter.
5. Once all the utilities have responded, work can then safely proceed, avoiding damages.

There are more than 20 million miles of underground facilities buried in the United States. Never dig without knowing where the underground facilities are located.

To place your free notification, call 1-800-DIG-RITE or 811 or go online at www.mo1call.com

And remember, always call or click before you dig!

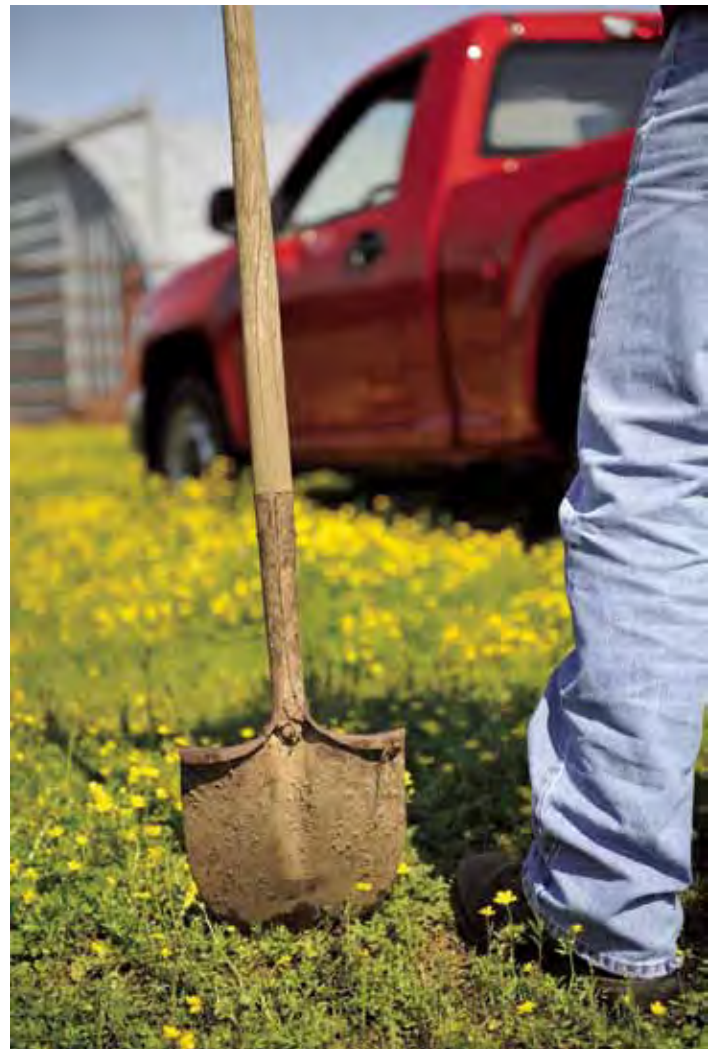
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**MISSOURI
ONE CALL SYSTEM**



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digging.jpg

 **Energy Efficiency**
Tip of the Month

One of the simplest ways to reduce your home's heating and cooling costs — and improve comfort — involves installing proper insulation. To maintain comfort, heat lost in winter must be replaced by your heating system. Proper insulation, though, decreases heat flow from warmer indoor space to the cooler outdoors.

tipofthemonth-Nov 11.tif

Doug Rye says . . .

Tint and save

Well, the summer of 2011 has gone on record as one of the hottest ever. Just like many of you, we received the highest electric bill that we have ever received. Every month, I try to teach you ways to keep your utility bills as low as possible. Remember that most energy-efficiency tips are attempts to lower the heating and cooling costs of the house.

As I am always looking for ways to help you do just that, I had the opportunity this summer to find another affordable tool for your energy-efficiency arsenal. It is window tinting. I actually looked at window tinting years ago but I didn't like the fact that it seemed to have to be silver, gold or really dark to work very well. Both of our automobiles have tinted glass, and I knew that they were more comfortable and better on the eyes than most of the rental cars that I had used where the glass was not tinted.



ryephotoradiostation.jpg

This past spring, I was conducting a seminar for an electric cooperative in Arkansas. After the meeting, a fellow asked me why I didn't tell folks about the benefits of window tinting. I told him that I really didn't know that much about that subject and that I had doubts about window tinting meeting all the claims that I had heard. He gave me a nice package of material from 3M, a well-known company. I told him that I would read the material. I did so and was impressed with the claims.

But I remained cautious, as experience has taught me that many claims are just sales pitches. But I thought, 3M is a large and well respected company, the warranty looks great, and if it performs anywhere near as good as it claims, I want to give it a try. So I called a dear friend who performs energy audits on a daily basis and asked him to find a house that might benefit by installing window tinting.

He called me after just a few days to tell me that he had found the perfect house. It was a 2,000-square-foot brick veneer house with 8-foot ceilings and about an equal number of windows on all sides of the house. The windows were single-hung aluminum with double-glazing and in good condition. The lady of the house said she couldn't use the dining room on the really hot days because of the extreme heat coming through the west windows, and that she couldn't enjoy her morning view of the mountains because of the heat through the east windows.

Let's make the rest of the story short. I called the company and asked if they would do one house to prove that their product works as claimed. They said "yes." I called the family and asked permission to tint their windows. They said

"yes." We met the crew at the house to measure the windows. It was 100 degrees at noon. The house thermostat was set on 75 degrees but the house stayed at 80 degrees. We met the next day to install tinting. It was 102 degrees at noon. Tinting was installed on all windows. The temperature where the sun was hitting the carpet went down about 10 degrees. The house temperature went down about 5 degrees, which is huge on a hot summer day.

The claim was that the tinting would reject 56 percent of the total solar energy, 97 percent of the infrared rays and 99 percent of the UV rays, which practically eliminates fading. You could not tell by looking that there was tinting and there was much less glare. I believe that it passed the test. The house was more comfortable and, as the lady of the house said, "I got my room and view back." If your windows are still in good condition, this may be an affordable energy solution for you.

Another success story with 3M tinting took place during the 2010 Energy Efficiency Makeover sponsored by the Electric Cooperatives of Arkansas. The home of Bill and Mary Quilhot of Gassville won the grand prize and as part of the energy efficiency makeover, the couple's prized picture window, which provides a view of their beautifully landscaped yard and nearby woods, was tinted. An infrared thermal imaging camera showed that the tinting reduced the heat gain inside the house by 15 percent.

I hope this gives you yet another energy efficiency option for your home. And, as always, you may call me for more information at 501-653-7931.

HAPPY THANKSGIVING!

Doug Rye, a licensed architect living in Saline County, Ark., and the popular host of the "Home Remedies" radio show, works as a consultant for the Electric Cooperatives of Arkansas to promote energy efficiency to cooperative members. To order Doug's video or ask energy efficiency-related questions, call Doug at 501-653-7931. More energy-efficiency tips, as well as Doug's columns, can also be found at www.ecark.org.



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