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Review: 3 Home Power Monitors - Posted August 30, 2010

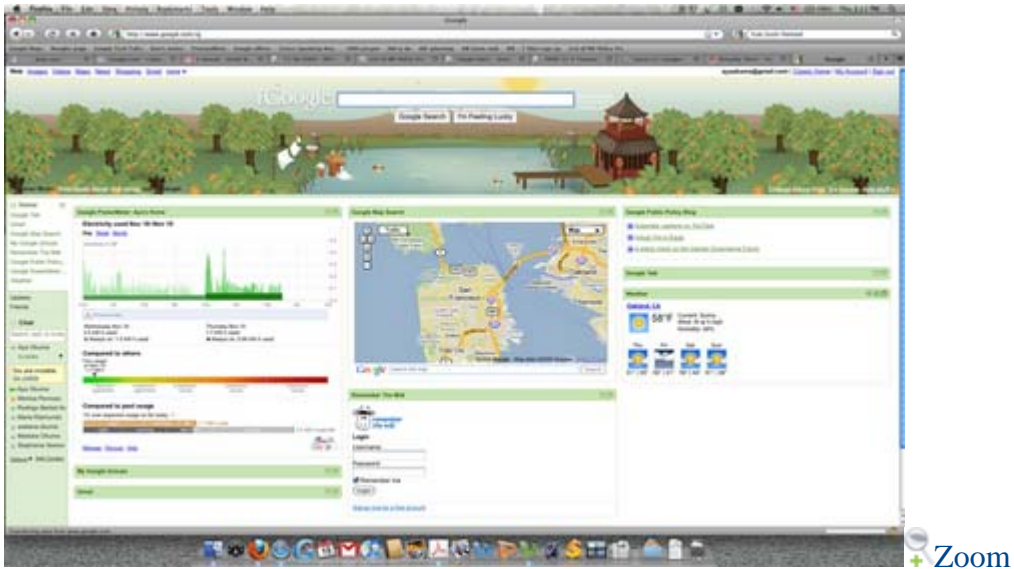
By Brian Nadel

1. Power is Money

Knowing how much electricity you use is the first step to using less. Here are three new products designed to give you more info about your juice use.

We all know that in this day and age money is power, but when it comes to the monthly electricity bill, a little knowledge can be a very powerful thing. That's because you can begin to better save power by being able to analyze and closely track your electricity consumption. Millions of homes, [offices](#), and factories do this by using smart meters that go beyond merely measuring how much power is sucked off of the grid but can apply different rates based on how much power you're using or the time of the day. Some can even selectively turn off major appliances during peak electrical demand. Smart meters also allow utility [companies](#) to better manage supply and demand and to offer discounts for those who turn off their air conditioners on a hot day.

Some smart meters even let you watch your power use wax and wane on a computer screen with Google's PowerMeter program. The software also predicts what your demand will be based on your past use. The best part is that Google's PowerMeter is free.



But what about the rest of us who have old meters that do nothing other than measure power use? For instance, my unenlightened utility recently installed a digital meter, but it's just as dumb as the one the house had when I moved in 15 years ago.

As a solution, there are several kits available that monitor your power use and let you keep an eye on how much juice you're using. The best alternatives predict the cost and help you use less electricity. Far from perfect, they, unfortunately, only estimate the cost of electricity, while ignoring taxes, service fees, and surcharges.

I got my hands on three of the newest household power monitors and used them to keep an eye on my power use for several weeks of the hottest summer anyone can remember. Blueline's PowerCost Monitor and Grossman Innovation's Energy Owl have a sensor that fits over the outside of your electrical meter that relays its data to a desktop screen or to a computer via a USB cable. By contrast, PowerSave's ENVI has inductive clips that wrap around the input electricity cables and the data is transmitted over the air to a desktop display.



[+ Zoom](#)

Recently, a [survey conducted by IMS Research](#) involving 1,000 respondents--half of which were in the United States and the other half in the UK--revealed that over 50% of those surveyed considered monitoring their power use as something that was very important to them. In other words, a power monitor can change the way you look at an electrical outlet and your power bill.

Recent research from the [University of Nebraska](#) shows that once people can monitor their power use, they naturally start reducing it. By how much? On average, people lowered their power use by 15%, just by monitoring their use. That means that the [average U.S. household](#), which has a monthly power bill of about \$100, can pay for any of these power monitors in less than a year. After that the savings add up quickly. More to the "green" point, that's the equivalent of more than 1,500 pounds of carbon that won't be dumped into the air, based on the [EPA's carbon calculator](#). After all, when it comes to the environment and your electricity bill, a little knowledge can go a long way.

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2. **Blueline Innovations PowerCost Monitor**

Knowing how much electricity you use is the first step to using less. Here are three new products designed to give you more info about your juice use.

Blueline Innovations PowerCost Monitor

\$100/\$259 with a WiFi Gateway

★★★★1/2

+ Works with most electrical meters

+ Wireless desktop screen

+ Includes clock and thermometer

+ Shows instantaneous power use

+ Optional WiFi bridge

- Limited wireless range

- Sensor hard to line up

- Expensive WiFi Gateway

Blueline Innovations' PowerCost Monitor can teach just about any dumb power meter a thing or two. It won't bring it up to the level of a utility-supplied smart meter, but it's an easy and inexpensive way to learn a lot about how much electricity you use so you can start to reduce it.

The PowerCost Monitor has a sensor that wraps around the power meter and wirelessly sends its data to a dedicated desktop screen and to a computer with the optional \$159 PowerCost Monitor WiFi Gateway. Both the sensor and the display use a pair of AA

batteries, which are included, and the gateway requires an AC outlet. There's a nearly identical system that's sold by [Black and Decker](#).



The hardest part of the setup is lining up the sensor with the meter's optical port, but the included clear plastic template helps. It's a delicate job that's hit or miss, but I got it on the third try.

Once the sensor is working, it's time to set up the desktop display. At 7.3" by 3.2" by 1.1", the display has a 3.9" monochrome LCD screen that displays that data in large, easy-to-read [fonts](#). You'll need to spend a few minutes entering the day, time, and how much you pay for power. It can handle a single rate or up to three tiered rates.

The PowerCost display receives power-use data every 30 seconds from the monitor over a 433 MHz [wireless connection](#). In addition to the day, time, and temperature outside; the screen shows current demand and total use over the course of a month. Hit the button with the dollar sign on it and the display shows how much you're spending to pay for power at that moment. At any time, you can clear the unit and start fresh.



A big step forward is that it can estimate the power use of a single appliance, like a clothes dryer or a new air conditioner, by isolating the background usage. It helped me see that my clothes dryer uses upwards of 3,500 W, for example.

Range can be a problem for those who live in a big house or where the power meter is inconveniently placed. I was able to get about 70-feet out of the unit, which covers about two-thirds of my house.

With Microsoft's Hohm software and the WiFi Gateway, you can view on your PC your power use, estimate its cost, and even figure out how much carbon you're responsible for. However, the gateway only works with 802.11b networks.

It works with [Internet Explorer](#), Opera, and Google Chrome [Internet browsers](#) and displays your power consumption for the last half hour, six hour, day, month, or year. While they all have a small summary bar graph below, the monthly and yearly plots include a line graph on temperature, but unlike the Grossman software, the Hohm application doesn't allow you to customize the graphs.



Able to work with four different types of meters, the PowerCost Monitor covers 90% of the meters in use, from rotating-wheel meters to digital ones. However, setting it up is a little tricky--because of the type of meter I have, I had to remove the device's optical sensor and reconfigure its position. It's all spelled out in the instructions, but it took about 45 minutes to set the whole thing up and to get it working.

With the WiFi Gateway, PowerCost Monitor connected my entire home. It's a better arrangement than the Energy Owl's wired connection, but its \$259 total price with the WiFi Gateway will be too expensive. PowerCost Monitor is a complete kit for getting a handle on your electricity habit without stringing wires throughout your home.

3. Grossman Innovations Energy Owl

Knowing how much electricity you use is the first step to using less. Here are three new products designed to give you more info about your juice use.

Grossman Innovations Energy Owl

\$90

★★★

- + Inexpensive
- + Works with computer
- + [Installs](#) on meter easily
- + Serial or USB connection
- + Comes with long cable
- Wired connection required
- Software is for PCs only

Rather than transmitting its data over thin air, Grossman Innovations' Energy Owl relies on good-old reliable wires, which make the gear less expensive but the [installation](#) can be a bit more awkward. If you don't mind snaking and hiding wires, the Owl is an inexpensive way to watch your power use on your computer screen.

The Owl comes with everything you need and takes about 10 minutes from opening the box to watching your power use to setup. Like the PowerCost Monitor, the Owl has a sensor that fits over the electrical meter, but doesn't come with a large hose clamp to [secure](#) it in place.



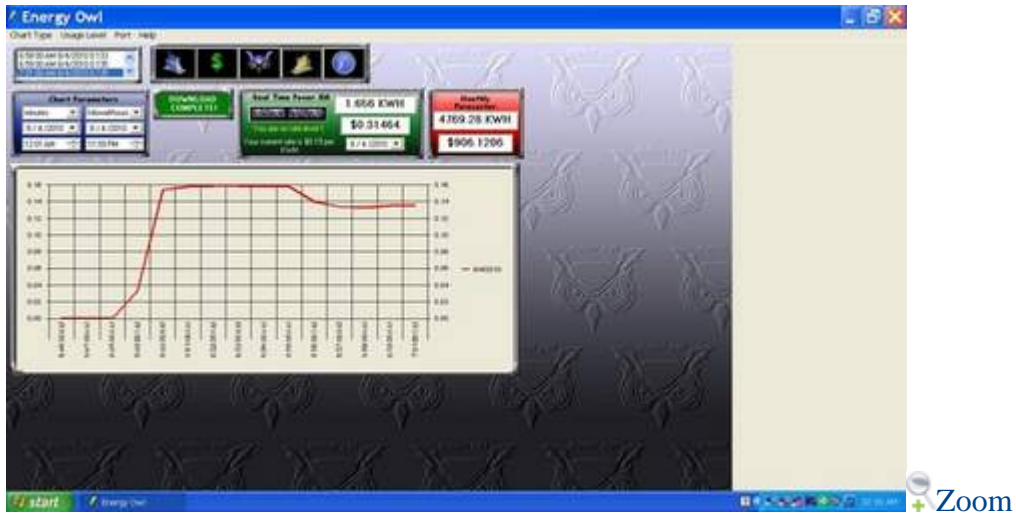
Instead, the Owl uses a right-angle bracket that has a powerful magnet that attaches it to the electrical box on which the meter is mounted. You may need to bend the bracket a little get it just right, but as soon as the sensor is in position, its LED blinks green and the data box' LED blinks blue.

When it was set up, I actually taped the sensor in place as well so that wind, rain, or careless utility workers didn't dislodge it. When I got everything working, I ran the wire through a window sill. It came with a 75-ft. thin [data cable](#), but you can order the cable in lengths between 25 and 250 ft., depending on your location. There's even a wall plate to help make where the wires enter the house look more graceful.

It can connect directly with a serial port on an older PC or with an included converter cable with the USB ports on newer PCs. After plugging the data cable into the Owl's data box and installing the included software, it worked on the first try, but took a minute or two to start downloading data. While the others poll the sensor several times a minute, the Owl moves data from sensor to the PC once a minute.

Unlike the other systems that have dedicated screens, the Owl monitors power use with an included program. Unfortunately, the software doesn't work on Mac or Linux computers and it can't dump its data into Google's PowerMeter program. The main screen can handle up to 10 different power rates and shows current as well as monthly

use along with costs--however, it does this without a temperature gauge that the other power monitors offer.



I really like the graph that can show the data as a bar, line, area, or step chart in 2D or 3D. It's a great way to see the peaks and valleys of actual use over time. While the data box will store about 10 days worth of power-use data if the PC is turned off, all the data in the PC can be archived for comparison.

If you spend most of your day with your head buried in a computer screen, why not use it to keep an eye on how much power you're using? The Energy Owl is a great way to do just that.

4. PowerSave ENVI

Knowing how much electricity you use is the first step to using less. Here are three new products designed to give you more info about your juice use.

PowerSave ENVI

\$170

★★★★

+ Excellent graphic display of information

- + Works with most power systems
- + Display shows antenna signal strength
- + Good range
- Expensive
- Intimidating installation
- Display can't run on batteries

If unscrewing the cover on your circuit breaker board and nosing around is more than you bargained for, read no farther because installing PowerSave's ENVI is a little more daunting than what is involved when setting up the Owl or PowerCost Monitor. It's expensive at twice the cost of the Energy Owl, but is actually easy to install, takes less time to hook up, and provides an excellent display screen that shows a lot at a glance.

There are detailed instructions for installing ENVI's inductive clips, which go around the input power cables and sense the electrical flow based on the electrical field it creates. The good news is that there are no naked wires carrying alternating current involved, but the bad news is that you need to maneuver near a lot of electrical connections.

For amateurs, it can be nerve-racking, but if you read through the instructions, which show five different circuit breaker box lay-outs, you should be okay. It takes a couple minutes to get at the cables, put the clips on, and close everything up. Unlike with the others, there's no pesky sensor to align.



The ENVI system works with just about any power set up in North America. The inductive [clips](#) lead to a transmitter that runs on a pair of D batteries, which are included. It comes with Velcro adhesive tape on it so it can be mounted on a wall.

Like the PowerCost Monitor, the [transmitter](#) sends a power reading over a 433 MHz link to a desktop screen, but it does so every 12 seconds, which is more than twice as often compared to the PowerCost Monitor. ENVI's 4.5" display screen is bigger than the PowerCost Monitor and runs on AC power, but can't be battery powered. Unlike the PowerCost's screen, the ENVI's display swivels for a better view.

It has a port in the back for linking the system with a PC with an included USB cable. The company will soon start selling a bridge to send the data over the Internet as well for remote sensing. That way, you can keep an eye on the power meter's data from anywhere the Web reaches with Google's PowerMeter software. The bridge currently costs \$45 but will go up to \$69 in September.

The display consolidates a lot of data on a single screen that shows current use and cost as well as how it has changed over the last month based on average use. On top of that, there's a nice bar graph that shows day, evening, and night use as well as a cumulative monthly tabulation.



 Zoom

Like the PowerCost Monitor, ENVI shows time and temperature, but not the date. It does display one thing in particular that I found very useful in troubleshooting the system: the signal strength. It also has a range of 110 feet. Unlike the PowerCost Monitor, the transmitter is installed inside so it doesn't have to get through a thick exterior wall. It essentially worked in every nook and cranny in my house.

While it can't automatically isolate the power use of an appliance, it's something that's easy to do with a pencil and piece of paper. I like the single-screen presentation better than PowerCost Monitor's two-screen approach. It's easy to see what's up at a glance by looking at the bar graphs of daily use.

At roughly twice the cost of the PowerCost Monitor without the WiFi hardware and the Energy Owl, the \$170 ENVI device can help people get a handle on their power use, but its installation may be too complicated for the typical homeowner. In fact, the company will suggest an installer who can do the dirty work in your area to make the whole thing quick and easy.

5. Which One?

Knowing how much electricity you use is the first step to using less. Here are three new products designed to give you more info about your juice use.

While I like all of these power monitors and they each have the ability to help reduce your thirst for electricity, one stands above the rest: the Blueline Innovations PowerCost Monitor. By combining a dedicated desktop display with a WiFi gateway, it can show power use in a variety of ways. My only qualm is that at \$259 with the WiFi Gateway, it is an expensive way to be a power miser.

By contrast, PowerSave's ENVI provides a lot of information on a dedicated desktop display or via Google's PowerMeter software, but it requires opening up your electrical supply board to [install](#). That's too much for the typical homeowner to do on their own. By contrast, the Energy Owl has a wired connection and software to display power data on a computer, but you'll need to hide the wires and it doesn't work with [Google](#) PowerMeter software.

With the help of these devices, I have cut my family's power use by about 5%. It's not enough to retire a coal-fired power plant, but it's a start.