A Gizmo That Helps You Save Energy And $$?

by Stefan Durham, November 18th, 2011

To be completely honest, we weren't real excited when we first brought home the latest version of Blue Line Innovation's power monitor. Wrapped in a generic box stamped with the dryly serious (but immaculately descriptive) name "PowerCost Monitor," the object of this review sat on a shelf for a couple of days. It exuded a businessy, utilitarian feel, like a newly purchased paper shredder, surge protector, or box of paper clips.

Once we got this simple little electricity cost monitor set up and going, however…well…let's just say it became a part time obsession. We found ourselves impatient to get home from work and see how much power our fridge was drinking in, or find out how much in cents-per-hour it cost to watch our favorite evening reality show. Studies have demonstrated that even basic awareness of how much electricity you use leads to unconscious changes in your daily gadget-using habits. Could the Blue Line PowerCost Monitor be more than a fascinating toy? Could it catalyze a whole new way of life? Perhaps… Read on for the full story.

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DeBoxing

The graphics on the outside of the PowerCost Monitor box are friendly and encouraging. A 1950′s-retro cutaway illustration shows a woman standing inside her ranch-style house looking at her power monitor while it gets signals from the sensor on the electric meter outside. Curvy little white lines depict the radio waves passing between the monitor and the sensor (they talk to each other through the air, via the magic of radio waves!).

The warm feeling we got from this mid-20th-century (re)envisoning of energy-conscious domestic life subsided a little when we actually opened the PowerCost Monitor box. Its daunting array of contents includes two separate instruction manuals (one for setup, the other for use), the LCD unit that displays info, the sensor unit that attaches to your electric meter using an included clamp strap, a shim, and a "template" sticker. A wave of apprehension swept over us when all this technical equipment poured out of the package. It looked like we were going to need tools and a focused effort to get this thing going.

Features/General Impressions

The Blue Line PowerCost Monitor limits itself to a handful simple, useful functions. The time and the outside temperature are displayed at the bottom of the monitor's large, easy-to-read LCD display screen. The top of the screen shows your real-time total electricity consumption in terms of kilowatt hours (kWh). When a button on the monitor is pressed the same line will show how much you're using in terms of cents per hour. You can also view your total electricity consumption–in either kWh or ¢'s per hour–since the last day the monitor was reset. Press another button to show a predicted estimate of how much electricity/money you can expect to spend in a month at the rate you've been going. Then there's the "appliance" button, which allows you to see how much a single appliance consumes in your home when you turn it on. This is the function that will have you systematically turning lamps, blenders, and heaters on and off all over your house throughout the following week, just to see how much energy each one hogs.

Set Up

The Blue Line PowerCost Monitor is not easy to set up. It doesn't require a degree in engineering, but to complete the setup you'll need a little determination. Its poster-sized installation guide unfolds to reveal 10 discrete steps to installation. The first of these is putting batteries in both the sensor and the monitor display unit. A screwdriver is needed to place the batteries in the waterproof, outdoor-hardy sensor unit (don't get the waterproofing silicone grease on your clothes). Not a problem, but things start to get a little more technical when you next have to go outside and determine your electric meter's design type.

Generally speaking there are four different types of meter designs. Write down which kind you have because you must know this when punching a "power factor" number into the monitor's LCD display unit later. You'll also need to put in your electric company's rates, in cents per kilowatt hour. For this, dig up your most recent electricity bill. If your power company charges a round-the-clock flat rate, your programming will be easy. If your power company has different rates at different times of day ("peak," "off-peak," and/or "tiered" rates) you'll have to figure each one of these out before programming them separately into your PowerCost Monitor's display unit. Again, it's not hard, but you may need additional time to parse your bill and to further subtract flat monthly fees when figuring your real cost per kWh.

Once you've gotten the math out of the way, you use your screwdriver again when clamping the wireless sensor unit to your electric meter. Since each meter is different, Blue Line manufactures the sensor unit to be highly configurable for a variety of situations, with the end result being that it looks and feels sort of like a plastic Transformer toy. We had to transform our sensor by detaching its arm, spinning it around, and looking through a hole while sliding it in at a different place so it could correctly interface with our meter's top-mounted optical port. Finally, after a bit of standing outside in the rain while pushing and pulling on the sensor to get it situated just right, we were rewarded with evidence that it was reading the meter and communicating with our display unit inside the house. Phew.

Performance

The PowerCost Monitor performed its duties well and as advertised. While all its functions are useful, we found ourselves mostly keeping it in "cents per hour mode," and never grew tired of coming home, walking over to the monitor, and mentally calculating how many more groceries we could buy if we turned off the power to our house for a while. During the first day or so of use we were thrown off by the occasional lags in the monitor's display of our real-time energy consumption, but after a while we became accustomed to it. The monitor's "appliance" function proved to be the most fun and addictive feature on the device. To use it, you simply zero out the display by pressing the "APPL" button and then go turn on a single appliance to see how much it alone consumes. You have to make sure no one else is turning on anything else in the house while you're doing this, and you have to watch out for automatic cycling of appliances like your fridge or water heater.

But, if you're like us, you'll come to thrill (and occasionally gasp) at seeing how much juice your everyday appliances really consume in terms of cents and/or kilowatts per hour. When playing with this function we quickly discovered, for instance, that our refrigerator only uses 4¢ per hour while running, but our stove sucks up 25¢ per hour and our clothes dryer burns a whopping 50¢ per hour. We ran all over the house each evening testing the energy use of everything from space heaters to computer monitors, and it didn't take long before we found ourselves compulsively turning off everything in sight in an effort to edge the real-time total ¢'s per hour number on the display a little lower. In short, watching our hourly energy consumption became a habit and a game, and new awareness about how much it cost to run each of our appliances soon crept into all aspects of our home life.

Conclusion

The Blue Line PowerCost Monitor proved to be reliable and easy to operate, and its wireless design gives it a distinct advantage over at-the-plug energy watching devices such as the well known "kill-a-watt" style monitor. But maybe the most notable thing about it for us was how powerfully it modified our energy using behavior. While devices that plug in to a socket to measure a specific appliance's power use can be helpful, simply having the PowerCost Monitor's display unit sitting atop a table while it displays real-time energy consumption gave us compelling and constant feedback on how well we were doing at conserving total household electricity.

Such effortless changes of energy-using habits will soon pay for the cost of the power monitor itself, and the environmental benefits of such a system make it a win-win for all concerned. And speaking of paying for the cost of the monitor, pricing through Blue Line looks to run around $109 starting – we've seen it online other places for a little less as well.