

PowerSave / CurrentCost Envi Product Review

By Tom Tate

Background

Electric bills are inherently abstract. They show electric use a month after it occurs and offer no detail as to how that energy was consumed. Without the benefit of a detailed look at how energy is consumed, it is hard for the consumer to make adjustments to their consumption patterns and habits. Utilities have tried a variety of methods to encourage change. Time of use rates is one of the earliest. Educational programs, charts, brochures, spreadsheets and most recently, access to data from automatic meter reading systems have been put into play to help bridge the gap between the abstract lump sum and the reality of what uses watts in a home, or business. The best aid to changing consumption may be to have access to real time data in a way that the consumer can easily implement and use.

It is with this last option in mind that I began to investigate real time in-home displays for use by the residential and small commercial members of Sussex Rural Electric Cooperative. Products such as Kill-a-Watt have been available for years but suffer from some key deficiencies.

1. These are point of use devices and therefore do not display the consumption of the whole house.
2. They are restricted to the outlet where the appliance is plugged in making it difficult to observe use and track it.
3. They have no ability to offload their data for analysis.

Other offerings that have recently been introduced to the market make use of an optical reader that mounts on the electric meter and reads the disc rotation. For SREC's application, these are unsuitable as our AMR module obscures the disk. An additional drawback to these units is the need to exercise some care in properly aligning the sensor to the disk. When meter maintenance needs to take place, the sensor represents an obstruction for utility meter techs. The homeowner must reapply the sensor and the possibility for damage to the sensor during the maintenance does exist. Further, I see the potential for weather and nature to impact the accuracy of the alignment after installation.

AMR manufacturers are beginning to develop in-home displays as part of their overall package. The intent of these offerings seems to go well beyond the tracking and educational aspects I seek. These offer messaging from the host utility, the opportunity to control appliances and equipment and generally seem to be focused on utility needs. While a reasonable approach from a utility viewpoint, it strays from the consumer perspective.

The PowerSave / CurrentCost offering seems perfect for the SREC member for the following reasons.

- It is a whole house system.
- It works with our meters.
- It can track up to nine individual appliances.
- The display is fully featured and can be located where most convenient for the user.
- With an additional CT, it can be used with three phase services.
- It can be linked to a PC for capturing and manipulating the data it collects.
- It holds up to seven years worth of data.
- Finally, the device can show you how much you save in energy and dollars in real time, making it ideal for tracking energy hogs and educating users about what uses watts in the home.

System Components



The Envi consists of a transmitter, two current transducers, a display and a power supply. The transmitter is mounted in or adjacent to the circuit panel with the CTs slipping around each of the two legs feeding the panel. The display is programmed with the appropriate rates (including the ability to use variable rates such as time of

use and off peak). A serial to USB cable is also included to allow the Envi to connect to a PC for data collection and manipulation.

Installation

The entire installation process took me 15 minutes from start to having the system operating and displaying data. The biggest potential hurdle for Envi to overcome is the need to take the cover off the circuit panel and install the transmitter and CTs. Some members will be uncomfortable with this portion of the installation. I elected to remove one of the knockouts in the side of my box and mount the transmitter next to the panel. This was done since I had a significant distance to transmit the signal and did not want

the panel to reduce the signal (this was a precaution on my part – it may not have been at all necessary).

Prior to installing the transmitter, it needs to be paired to the receiver. This happened instantly once everything was ready. However, the process for setting up the pairing is easy as I discovered when using a second transmitter to measure other appliance use.



Programming the receiver is also easy. The instructions are brief and complete, making use of numerous pictures to step you through the process. As a technology buff, I found the three-button arrangement perfectly adequate for the job.

Using the System

The display occupied the place of honor on the kitchen center island for the first two days as my wife and I became familiar with the system and the data presentation. We experimented with turning appliances and lights on and off to see the effect on cost and consumption. For my wife, who is not a gadget person, this was very intriguing and she has taken heartily to the Envi, calling out when she has turned on an appliance to ask what changes I see.



The Envi quickly moved upstairs to sit next to my PC so I could take advantage of its data logging and transfer capabilities. This setup was also painless. I went to the PowerSave website and followed the links to the software downloads. I needed a driver to handle the serial to USB interface. This installed normally and is available for both Vista and XP.

There are seven software packages available for the Envi to handle data presentation (see pictures at the end of this document for screen shots of the PowerSave Home and Download pages). The one from CurrentCost (C2) simply pulls over the data in an XML format where you can work with it in other applications such as Excel. In a test over one weekend, I

collected nearly 1100 pages of text data via the C2 package. I have not had time to try and import it into excel as of yet. The device generates a ton of data for its size!

The other six are third party applications with slicker interfaces. I have tried two so far, Technique and Make Histori. The first replicates the display of the Envi and allows some charting. The other is a website where you create a mash up of various displays and charts to suit your needs. An interesting aspect of these two applications is that the PC must be on all the time for the best use of data, a curious requirement since both go heavy with the energy saving message. Because of other time constraints, I have not spent a lot of time with any of the three but will delve into them further. A slick PC interface would be a terrific enhancement and it appears to be in the works.

Planned Enhancements

Sometime in 2010, CurrentCost will introduce individual appliance monitoring modules (apm). These will function like the Kill-a-Watt in that they plug into the outlet and the appliance being monitored plugs into the apm. The Envi display can monitor nine individual appliances and you scroll through them with the arrow keys. I have requested consideration for building a 240-volt version for use with electric dryers and other higher voltage equipment. Some level of control will be possible over the individually monitored items using the display. This functionality will be available for existing PowerSave systems.

Also in the works are additional software applications and the ability to upload data to Google Meters. The Google Meters link will be introduced in an April launch. A PDF document describing this interface and the registration process with Google is at the end of this document. I am looking forward to their availability.

Application with Members

Education and awareness

To me, this is the key application for this product. There is simply no better demonstration of what it costs (or saves) to run various appliances and systems than this device, at least not that I have seen. It has potential use with local civic groups and schools if adapted for a demonstration environment where you can show how appliances use energy and the associated cost.

Diagnostics

In a recent training class on energy auditing, the instructor said the intent is to turn a high bill complaint into an excessive consumption concern. The Envi could be a dramatic tool for members if installed so they could see for themselves just how their living patterns use energy. I can see installing an Envi, educating the consumer on its use and leaving them with the device for a week or two. A follow-up visit to retrieve (or sell) the device is the perfect opportunity to reinforce and further educate the consumer on what uses

watts. Plus, with the proper software, the data from the Envi can be dumped to a PC for detailed analysis – a nice feature if the cooperative does not currently have AMR on their systems. Think of it as a data recorder for residential and small commercial use.

Revenue generator

Selling the Envi can also generate a little revenue for the cooperative. At the retail price of \$129.00, there is a nice margin potential. That price does not seem out of line with equivalent offerings. The devices can be sold in the office, at the Annual meeting, at public events that focus on conservation, and so forth.

Does the Envi Overlap with AMR In-Home Displays?

In my opinion, it does not. As mentioned earlier, the AMR offering appears to focus more on control and communication from a utility's perspective. The Envi targets the consumer and has a feature set that supports that design intent. It is easy to use, can be placed where desired, relocated as needed and is a DIY product. These two are actually quite complimentary and the use of the Envi ahead of the AMR offering may actually make it easier to deploy the latter when it hits the market.

Conclusion

The Envi is an excellent education and awareness product for use with our members. Combining the Envi with other programs such as high bill investigations and audits. The opportunity exists for revenue generation as well.

With two months of experience under my belt with the Envi in my home, I wholeheartedly recommend it for any cooperative and member interested in getting a handle on exactly how their home uses electric energy. My interest has not diminished over that time period and I am looking forward to the planned enhancements for software interfaces and individual appliance monitoring.

The Envi offers a rich feature set, robust construction, simple installation and programming and a wealth of data one operational. What could be better?

Quick Links

Buy Now

Register your Envi

Download Software

Locate an Installer

Technical Support

Take control of your electric usage

With PowerSave's Envi you can see in **REAL TIME** how much electricity your whole home is using! Only by knowing how much you are consuming, can you start to manage it.

The Envi displays:

- Energy use in Dollars and Kilowatts
- Historical usage for the past day, week and month
- Calculated average usage in Dollars and Cents
- Computer connectivity
- Monitor up to nine separate devices

Envi kits come with everything you need. Simply install two sensors in your power panel and a wireless transmitter will send usage data directly to the display in real time.



Studies show that when you have the ability to monitor your electric usage and get immediate feedback of your actions on an easy to read display, you can save as much as 15% on your electricity usage.

Save Energy

How much are you using right now?



Every month you get your bill and from an array of devices, it is

Testimonials

Mary's Story



News

Google's Call to Action



Reseller Network

Green contractors and inspectors



Pachube

Home Monitor
makeHistor
Current Charts
Energy Station
CurrentCostgui

Back

Software Downloads

There are so many ways to track your energy consumption, online, on your phone and on your PC.

Green IT enthusiasts have and are creating for wider use software to enable users to manage the home's energy use remotely and analyze their consumption as two examples. We are building a catalogue of some great software - giving you the chance to choose an application that is most suitable for your needs.



Drivers

Download the Windows installer for the data cable:

Download for Windows 7, Vista (32-bit and 64-bit)

Download for Windows XP (32-bit and 64-bit)

Download for Windows XP, 2000, ME (32-bit only)

IMPORTANT! Please run the driver installer and reboot before plugging in the USB adapter into a free USB port on your computer.

Current Cost Software

C2 Terminal

C2 Terminal driver - download C2 terminal.ap