



In Business : VEP energy trial set for spring

Load balancing technology to be tested in 50 households

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If you need a new appliance - or several - and don't mind being part of an energy conservation experiment for two years, now is the time to buy. The non-profit Vineyard Energy Project (VEP) which received a \$787,250 grant from the US Department of Energy in October, still has funds to help 15 to 20 households participate in the program.

Specifically, a household could purchase any number of General Electric appliances (including refrigerator, range, dishwasher, washer, dryer or heat pump water heater) at a GE discount averaging 22 percent. Then the VEP, using the DoE funds, will also reimburse 50 percent of all the purchase costs including the price, shipping and installation.

In order to realize the savings, a household must also purchase a Home Energy Manager (HEM) costing about \$700, and one communication module per appliance (each costing \$200) so that the appliance energy use can be regulated to avoid the use of energy during peak periods when the cost per kilowatt hour is at the highest. Half of this expense is also reimbursed.

The DoE program will create smart grid technology on the Island and collect energy usage and savings data during a two-year period. As many as 50 Island homes will be able to participate in the pilot project.

Once installed, the HEM will be programmed by the home owners and will work much like a home wireless network. The appliances will communicate with the HEM and control energy usage in order to conserve electricity. GE appliances are the only ones currently available that interface with the HEM technology.

"Load shedding" is the process by which a signal is sent to the HEM from a computer program that is constantly surveying energy pricing. When the computer sees a peak in prices, it sends a signal to the appliance that the price is too high and asks the appliance to turn off or turn down consumption until the price of energy is reduced, according to Ted Bayne of West Tisbury, a VEP board member and the manager of the Smart Grid project on the Island.

For example, according to Mr. Bayne, a homeowner could set the HEM unit to reduce the temperature of water for an hour when demand for electricity is high, but hot water usage is low. The homeowner is not likely to notice, since the hot water will cool very little in the insulated tank. Some appliances might be set to turn off during peak demands, and turn back on when demand is less, and electricity less expensive.

Approximately half of the grant funding will be spent to create the computer software technology needed to manage the energy saving process. Appliances are now expected to be delivered and installed here in May and June. The HEM technology and computer software is to be installed in participating homes in July.

Savings and data

Chilmark police officer Sean Slavin and his wife, Dardy, have ordered almost all new appliances through the program to outfit the affordable home they are building in Chilmark. Mr. Slavin told The Times that they are very excited about being a part of the program. "The price was a huge consideration for us," he said. "The appliances are high quality, top of the line and very discounted in price. We probably would not have been able to buy such high end appliances otherwise."

In addition to the initial cost savings, the pilot program's energy savings also attracted the Slavins. "It's worthwhile and interesting to be a part of," Mr. Slavin said. Because the Slavins and their three-year-old son Quinlan will be moving into a new home that is three times larger than the rented cottage they live in now, they will not be able to compare energy savings as others in the program will be able to do. "But it is going to help everyone involved cut down in energy use and expenses," Mr. Slavin said.

The HEM system can tell the householder not do certain things in peak energy usage hours, which has dissuaded some people from participating.

"But there is an override on the appliances," Mr. Slavin said. "The stove will only let you use one burner in peak hours and I could not deal with that, but I know we can override."

If the HEM tells us that we have to defrost the freezer at four in the morning, who is going to care about that?"

The HEM units also communicate from the home to a central database where information regarding energy use and savings is stored. According to Mr. Bayne, GE is very interested in learning more about "whole house usage" of energy and its appliances.

The VEP is interested in learning how the residents of the Island might better control energy costs. And, the federal government wants to learn as much as it can about the potential of energy savings, using a combination of highly efficient appliances and this process of load balancing.

Medeiros Appliance of Vineyard Haven has been selected as the vendor for the GE appliances, and **Nelson Mechanical Design Inc.**, also of Vineyard Haven, will do the installation and hook up of the HEM units, according to Mr. Bayne.

In addition to paying the participating households portions of the cost of the appliances and agreeing to participate in the research pilot program, each homeowner must be a member of Vineyard Power. Vineyard Power is the community-owned renewable energy cooperative created by VEP and incorporated in November 2009. The one-time-only VP membership costs \$50, but that cost will rise quarterly until the year 2015 when it will reach \$975.