

Packetized Energy Program FAQ



Vermont Electric Cooperative (VEC) is looking for volunteers for a pilot program to test a new energy management technology being developed by Packetized Energy, a start-up company in Burlington.

What is the Packetized Energy Program?

The Packetized Energy Program involves the installation of a small device on VEC members' electric water heaters that optimizes when the water heater draws electricity from the grid. The objective of the technology is to better balance supply and demand of electricity on the grid, which is increasingly important as more intermittent energy sources, like wind and sun, provide power to the system.

Why should I participate?

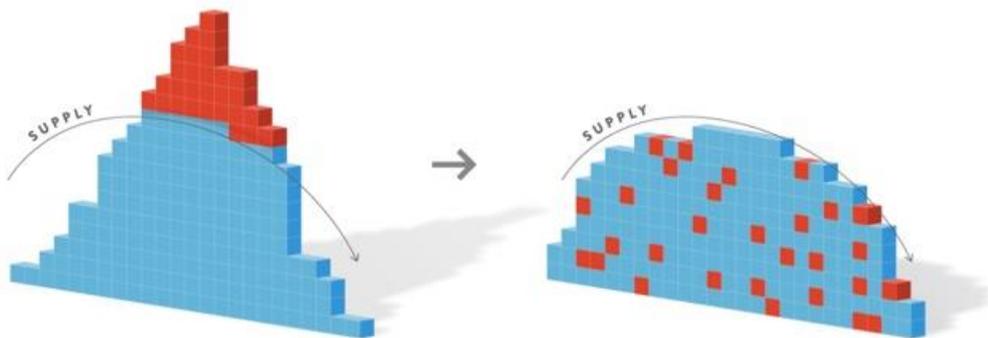
The technology has significant potential to help the co-op and other utilities balance power supply and demand. A more balanced system can bring down system costs (which can help control electric rates), ease the integration of renewable energy into the system, and help avoid the use of more polluting forms of electric generation.

By participating in this pilot project, you will be helping the co-op to move towards a greener, affordable energy future.

How does the Packetized technology work?

Unlike a television or a lamp – which are appliances people generally want on and off at very specific times – most people don't care precisely when their water heater turns on or off as long as they have hot water when they want it. Water heaters, therefore, offer a measure of flexibility as to precisely when they draw electricity from the system.

Water heaters typically heat water for 20 to 30 minutes at a time. Packetized Energy's technology breaks that "ON time" into several five-minute chunks or energy "packets" (see graphic below, left). These "packets" are then turned on at optimal times to match electric supply on the grid (see graphic below, right). Operating this way, a water heater can effectively become an electric energy storage device, much like a battery, that is recharged at optimal times and discharged any time there is demand for hot water. Consumers should notice nothing different in their hot water supply.



What do I need to qualify?

You will need to:

- Be a VEC member in Bolton, Cambridge, Essex, Fairfax, Fletcher, Georgia, Grand Isle (town), Hinesburg, Huntington, Jeffersonville, Jericho, Milton, Richmond, St Albans, St George, South Hero, Starksboro, Underhill, Westford or Williston. (This is so VEC can accurately test the effectiveness of the technology in a concentrated area that can benefit the most from load control.)
- Have an electric resistance water heater. (All residential and small commercial electric resistance water heaters qualify as long as the heating element is 4.5 kilowatts or smaller.)
- Have password-protected wireless internet access (WiFi).

Unfortunately, natural gas, propane, oil, and tankless heaters are not eligible for this program. Newer heat-pump water heaters may qualify for future programs, but the current program is focused on conventional electric resistance water heaters.

Not sure your electric water heater qualifies? Please send an email to info@packetizedenergy.com or call (802) 448-4845, and we can help you figure out if you qualify.

Are there financial incentives for participants in the program?

Participants will receive \$50 in electric bill credits: \$25 upon installation of the device and \$25 after one year of participation. Enrolled participants will also be entered into a raffle to win two \$500 cash prizes. One drawing will be held in early July 2018 and one will be held at the end of December 2018.

How large is this pilot program?

VEC would like to enroll between 150 and 300 members in the program in order to have the scale needed to properly test how this technology would work for peak management.

Will participating in this program reduce my energy usage or cost?

It could, but significant bill savings are unlikely. The energy your water heater uses depends primarily on how much hot water is used in your home. Assuming that your water usage doesn't change, your total monthly electric usage should not change either.

However, participants will be eligible to sign up for VEC's time of use pilot rate, which can save members money, especially if they shift usage to off-peak times. In addition, participants will be able to adjust their water heater's temperature set points or set their water heater into vacation mode when they travel, both of which could save energy.

The technology does enable your water heater to use more efficient, less expensive energy when it is available, which, if it's widely deployed, could make the system as a whole more efficient and help the co-op contain rates.

Will I notice a change in the temperature of my hot water?

No. Packetized Energy has designed this product so that when the water temperature drops below its set point, the water heater will automatically turn on, just as your water heater does now. If you occasionally experience periods of cooler water when people in your home are using a lot of water, then you will probably continue to experience that.

Will participating in this program affect the warranty on my water heater?

No. Major water heater manufacturers have assured Packetized Energy that, because the device does not affect the internal functioning of the water heater's elements, the warranty will not be affected.

What data will be collected? If so, who will have access to it?

In this pilot, Packetized Energy will be collecting anonymous temperature and electric usage data from individual water heaters in order to compare the performance of heaters under conventional operation to heaters operating with Packetized Energy management. This anonymized data will refer to, for example, "Heater No. 14" but will not identify the owner of that device. The anonymous data will be made available only to VEC, Packetized Energy's staff, and their research partners at the University of Vermont.

What is involved in the installation process?

After you are determined to be eligible, Packetized Energy will contact you to schedule a short visit to install the device and connect it to your WiFi network. The installation will be done free of charge by a licensed electrician who has been trained by Packetized Energy.

What happens if I participate in the program but later decide to opt out?

We will be sad to see you go. But if you decide to opt out of the program, you can contact VEC or Packetized Energy and we'll schedule a time to remove the device free of charge.

Contact info:

Packetized Energy: info@packetizedenergy.com or (802) 448-4845

VEC member service: support@vermontelectric.coop or (802) 635-2331