Harvard Post

"Taking risks"

WickedLocalHarvard.com Vol. 39, No. 1924 ■ $1

SOLARIZE HARVARD

Residents harness the sun

By Kristen DeJohn
harvard@wickedlocal.com

Jason Williams, left, electrician, and Matt Robichaud and Mike Richards, both apprentices, of New England Breeze Solar, install solar panels on a home on Cameron Road, as part of the Solarize Harvard program. COURTESY PHOTO

Did you know?

- On a bright, sunny day, the sun's rays give off approximately 1,000 watts of energy per square meter of the planet's surface.
- Solar energy is the technology used to harness the sun's energy and make it useable.
- Photovoltaic cells are made of semiconductor materials like those found in computer chips. When sunlight hits the cells, it knocks electrons loose from their atoms. As the electrons flow through the cell, they generate electricity.

ENVIRONMENT.NATIONALGEOGRAPHIC.COM

It's not often you hear a homeowner talking happily about an electric bill.

"Lately, I can't wait to check the bill," beams Harvard resident Carol Lee Tonge, who is referring to her newfound partnership with her electric company.

"We are expecting to be able to sell some of the power we're generating back to the company soon," she said.

Carol Lee and Tom Tonge are among a growing number of Harvard residents who have installed solar

SOLAR, PAGE 12

panels and are reaping the rewards.

"We are currently paying about half what we used to pay for electricity," she said. "We actually watch the meters going backwards as a form of entertainment now. It's exciting."

The Tonges are part of a pilot project for "Solarize Massachusetts," a statewide program launched by the Massachusetts Clean Energy Center (MassCEC) that is part of a larger effort to reach Governor Deval Patrick's goal of installing 250 megawatts of solar power in the state by 2017.

"We're on track to meet that goal," said Patrick Cloney, MassCEC CEO. "And among the four pilot towns, Harvard is installing nearly as many panels as Hatfield, Winchester and Scituate combined."

After what Cloney described as a wonderful grassroots marketing effort, Solarize Harvard is on target to install solar panels on 70 homes.

"So far we've installed about 35 and we expect to finish the rest this summer," said Mark Durrenberger, president of New England Breeze Solar of Hudson. "To say that Harvard residents did a great job of making this project successful is an understatement."

Panels that pay

"Ten years ago, it would take 10 to 15 years for an average solar array to pay for itself," said Durrenberger. "Today because of state, federal and utility incentives, homeowners can pay off the same investment in approximately four to six years."

"We've thought about installing solar panels for years because we have a roof that's south facing and unobstructed, but it was too expensive," said Harvard homeowner Peter Jackson. "So when the Solarize Harvard program started and costs came down, we decided to take advantage of it."

Jackson and the other homeowners in the pilot program received a price break due to a bulk buy-in deal with New England Breeze Solar; they also received a Federal tax credit to offset 30 percent of system costs, along with a $1,000 Massachusetts tax credit. To top it off, the Commonwealth Solar Rebate Program offers a grant worth $4 to $6 thousand. Ultimately, Jackson paid $8,250 for 20 solar panels on his garage roof instead of the nearly $15 thousand he would have paid without the incentives, although they did replace the old roof before installing the panels. An energy analysis shows the project should pay for itself in 2.5 years.

'For me, it's probably more the principle of going solar than the economics. Even if we had installed just 10 panels, which wouldn't have reduced our energy bill that much, I would have still done it. It's that idea of being somewhat independent of fossils fuels and international situations.
Peter Jackson, Harvard homeowner

"Now that the panels are up, there is no maintenance and we're starting to see, on average, a 30 percent reduction in our monthly electric bill," Jackson said.

Harvard homeowner Tom Sikina is going further with the construction of a brand new energy efficient home due to be complete this summer.

"We decided to build a "zero energy" house," he said. "I've worked with a general contractor, an architect, an energy consultant and told them that I don't want to have to pay any energy bills."

Sikina opted for a 50-panel, 10-kilowatt array, which is the maximum.

"If you go higher, it actually costs more because the electric company will charge you for higher capacity lines," said Sikina, who added that good insulation is the other key factor for energy efficiency. "We will have some propane for hot water and we do expect to get energy bills in the winter, but those will be offset by credits we'll receive for the electricity we'll generate in the spring and summer months. So, we're looking for it to balance out to zero over the span of a year."

If a zero energy home sounds too good to be true, talk with Harvard homeowner Nat Beale, who says he and his wife Julie make, on average, $2,000 a year for their energy output.

"When we built in 1992, we built the house to accommodate solar water heaters," said Beale. "I also have a wood burning gasification boiler and in December we installed two large solar arrays on poles."

While Beale admits the labor required to cut and haul seven cords of wood a year should be factored into his profit margin, it still shows that energy efficiency has reached new levels. Beale's "moneymaking" venture has really always been a labor of love.

"I've been fascinated with alternative energy since 1970," he recalled. "When I was in 10th grade, I heated a bath house on the Cape by rapping 80-feet of black tubing on a bathhouse roof."

Now in addition to enjoying the challenge of being energy independent, Beale also manages an energy profit.

"I've hired an energy broker who gets a 7 percent commission," he said. "He's like a stockbroker, but instead of trading stocks, he trades energy credits."

Solar Renewable Energy Credits (SRECs) act as a form of currency for solar-powered homeowners. Durrenberger says there are two ways homeowners can earn income from solar panels — "by saving on electric bills and by selling SRECs for 30 to 55 cents per-kilowatt hour."

"The sale of SRECs generated by a 24 panel array can average $3,000 a year," he added.

Durrenberger also points

ut that the panels can reduce the cooling load for a house and even extend the life of the roof.

"Panels are raised off the roof so you have air circulating under panels that carries away heat as opposed to letting it get stored in shingles and the attic," he said. "And since the panels take the rain, sun and snow, it's less wear and tear on shingles."

A ripple effect

"When you have a project with a list price of $50 thousand, which is reduced enough that you can pay back your investment in seven years, that's strong incentive," said Beale.

Beale is also thinking of the future.

"It's one less headache to worry about as you approach retirement," he said. "You have relatively fixed energy costs, eliminating worries about inflation."

With the success of the pilot program, Solarize Massachusetts is now focusing on solarizing 17 new communities.

"Ideally the model will be replicable year after year throughout Massachusetts," added Cloney.

As neighbors clamor to learn more about saving money, there is also a strong sense of simply doing the right thing.

"For me, it's probably more the principle of going solar than the economics," said Jackson. "Even if we had installed just 10 panels, which wouldn't have reduced our energy bill that much, I would have still done it. It's that idea of being somewhat independent of fossils fuels and international situations."

Sikina, who is an engineer and holds seminars on alternative energy, views solar power as a clear winner.

"If you take a look at the trends, there is 20 percent growth trend in solar power," he said. "You don't see those numbers in any other energy-related industry."

According to Sikina, energy efficient homes don't have to be unattractive.

"We looked at a lot of energy efficient designs, we wanted something that looked nice, and we were able to get that," he said.

It's estimated that the 70 solarized Harvard homes will save owners an average of $70,000 a year in total energy costs. MassCEC estimates that over a 20-year period, the solar arrays that are part of the pilot project alone will keep 13,000 metric tons of carbon dioxide from entering the atmosphere, which is the equivalent of taking 2,500 cars off the roads for a year. And residents like Nat Beale are keeping their options open to improve the outlook.

"I have the wiring for a third pole that could support an additional solar panel," he said. "I don't need it now, but I'm expecting that the next car I get will be an electric hybrid. I've installed the outlets in my garage and I hope to power the car with solar energy. It just makes sense."

Solarize Massachusetts

BEGINNINGS In April 2011 MassCEC launched Solarize Massachusetts in the towns of Harvard, Hatfield, Scituate and Winchester to encourage residents and businesses to go solar as a community.

INSTALLATIONS Residents in these four towns realized cost savings through bulk purchasing and helped install 829 kilowatts of solar PV.

CONTRACTS 162 residents or businesses contracted to install solar photovoltaic systems through the Solarize Massachusetts pilot. Harvard has 75 solar PV systems for 402.56 kW

RESULTS Before the launch of Solarize Mass Harvard had 13 residential systems installed

SAVINGS The solar capacity installed through Solarize Massachusetts will save 651 metric tons of carbon dioxide annually and during their lifetimes, these PV systems will save more than 13,000 metric tons of carbon dioxide, equivalent to the annual emissions of more than 2,500 cars.

INFO Email solarize@masscec.com or visit MassCEC.com