It takes a village

A novel community-based incentive program allows Harvard, Massachusetts to embrace cheap PV

You'd be smiling, too: Thanks Harvard's embrace of the Solarize Massachusetts program, Michael Taylor and many of his neighbors got PV systems for $4 per W.

It may be a cliché to say there is strength in numbers, but the residents of Harvard, Massachusetts are proving its truth when it comes to solar. Thanks to an enthusiastic response – and lots of work by local organizers – the state's Solarize Massachusetts program allowed many of the town's residents to go solar at prices well below those in the regular market. It's a model that the state is now expanding.

If Hollywood was looking to cast someone to play a quintessential New Englander, it's hard to imagine Tinseltown producers could find someone better than Michael Taylor. Tall, slender and ruggedly handsome, Taylor has the sort of features and bearing that bring to mind the traits widely associated with the region: resourcefulness, understated reserve and perhaps most of all, self-sufficiency.

On an unseasonably warm January day, as recently fallen snow melts and

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First out of the gate: Tom Williams, a salesman for Cisco Systems, had the first installation completed in Harvard under the Solarize Massachusetts program.

icicles drip, Taylor gives a brief tour of the grounds of his home in the small hamlet of Harvard, Massachusetts (not to be confused with Harvard University, which is in Cambridge), a one-time agricultural village that has lately become a bedroom community for professionals working in Boston. Taylor, who makes his living designing large yachts for corporate executives and other ultra-wealthy individuals, lives in a self-sustaining way that his high-flying clients probably wouldn't comprehend. In his spacious backyard is a large garden, which, Taylor proudly points out, takes advantage of multiple growing seasons per year and churns out everything from straw to blackberries and raspberries, to three different kinds of peas and even kiwis and grapes. In a penned enclosure, a number of Cashmere goats roam around, including an award-winning black one.

While raising animals and growing vegetables is an abundantly popular thing to do in Harvard – indeed, a day-long tour of the town leaves a visitor with the impression that everyone has at least a few chickens and a bountiful garden – Taylor's latest gambit towards self-sufficiency is located on his roof, where 27 Schuco 185 W panels (about 5 kW) take in the day's abundant sunshine. But here's something that's important to remember: as much as there is an environmentally conscious, back to the land credo in much of New England, so too is there a flinty thriftiness. Which is to say that folks around here generally don't part with their money unless they're darn sure they're getting a good deal.

In that regard, Taylor has nothing to worry about – in fact, if it was more in his nature, the deal he got would probably have him beaming and doing a little jig. After all, his total installed photovoltaic (PV) system cost $4 per W, which, is at least $1.34 per W lower than the average purchased residential system in Massachusetts. And according to the Lawrence Berkeley National Laboratory's most recent Tracking the Sun report on national installed PV system prices, Taylor beat the 2010 US average by a whopping $2.20 per W. Even better, after factoring in a suite of state incentives – including a rebate, income from solar renewable energy certificates (SRECs), a state tax credit and an added bonus for the use of in-state equipment in the form of a Solectria inverter – Taylor calculates that the payback on his system will come in less than 3 years.

But Taylor's situation is hardly unique in Harvard. As much as chickens and gardens seem ubiquitous in this rural town of rolling hills, so too do PV systems. In the course of just 4 months in 2011 this town's population of around 6,500 put over 400 kW of residential solar under contract to be installed, all of it at the bargain basement price of $4 per W and all of it being put in by just one company, New England Breeze Solar. Harvard is also working on a so-called community solar garden, which will add an additional 400 kW of solar capacity to the town. To put that number in context, tiny Harvard will have more installed PV in 2012 than PHOTON's estimates for several entire state markets, including Montana, North Dakota and Arkansas.

The social network

Solar policy and economics, especially as they function in the US, can be complicated to the point where it is difficult to understand why prices are what they are. But in the case of Harvard, if Michael Taylor wants to know why his PV system cost just $4 per W, there are actual people he can point to in order to say thanks – people like Jim Elkind and Tom Williams and Judith Eaton and Peter Davies, all of whom live in town and were interested in getting a PV system as cheaply as possible. Through their efforts, Harvard has been able to tap into the purchasing power of a whole lot of its citizens in order to collectively drive the very best deal it could get from New England Breeze Solar.

The idea for bulk purchasing did not originate in Harvard; rather, the town was selected to be one of four municipalities (the others were Scituate, Winchester and Hatfield) to participate in a pilot program called Solarize Massachusetts, which was designed and run by the Massachusetts Clean Energy Center (Mass CEC). According to Patrick Cloney, the chief executive officer of the Mass CEC, the initial iteration of Solarize Mas-

A salesman, of sorts: Jim Elkind, shown here with his wife, Kathy, was the local organizer of the Solarize program, helping others in the community go solar.

sachusetts was meant to test a number of theories, including the power of word of mouth marketing, as well as the elimination of customer acquisition costs for installers. »Some of us in the construction field have always seen this phenomenon of neighbor on neighbor selling,« says Cloney. »You go into a neighborhood and work on Mrs. Jones' house and by the time you're done, Mrs. Smith wants something done and lo and behold you're in the same neighborhood for a month. We wanted to leverage that phenomenon to get the word out for solar.«

By galvanizing a big chunk of an entire community around going solar, Cloney was able to approach installers with true bargaining power. »Our proposition to the municipality was that if you bring us all of your rooftops we can go into the installation community and get you the best price,« says Cloney, whose organization ran a request for proposals amongst integrators interested in serving an entire town. There was another interesting wrinkle to bringing an integrator and a town together through Solarize Massachusetts: installers had to offer tiered pricing. In the case of Harvard, that meant that New England Breeze's pricing began at $5.50 per W. If only enough residents signed up to reach a total of 100 kW of capacity, then everyone would get that price. But if there was enough interest to install between 100 and 200 kW, then the price per W dropped to $5 for everyone. This pattern of more people signing up triggering drops in prices continued up to 400 kW, at which point the price for everyone would be $4 per W.

From idea to execution

It's one thing to have an idea elegantly mapped out on a white board and quite another to see it actually work. One of the big question marks, of course, was just how effectively Harvard residents could sell the idea of going solar to one another. While the Mass CEC played an important role running an RFP to find an installer and holding informational sessions about solar and incentives in Massachusetts, the reality was that the ultimate responsibility for the success or failure rested with the citizens of Harvard. One of the requirements to qualify for Solarize Massachusetts was that each community select a point person who was responsible for coordinating outreach efforts among neighbors and directing people to New England Breeze so they could get site assessments and begin the sales process.

In Harvard, that responsibility fell to Jim Elkind, a former employee of Oracle who has deeply educated himself about the policies and economics of solar. Elkind knew he was starting with some significant advantages, Not only is Harvard among the wealthier towns in the state – still an important factor in PV sales – before applying to participate in Solarize Massachusetts an informal survey of town residents revealed that there was plenty of interest in PV systems. As Elkind saw it, his job was to make people aware of the program and to continually follow up with those who had expressed interest.

Why is this man smiling? Mark Durrenberger, CEO of New England Breeze Solar, was the integrator chosen to install all of Harvard's PV systems, each one at $4 per W.

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»I mobilized volunteers to set up tables at events where townspeople would be anyway, « he says. »The theory was, don't ask them to come to an event for this, go to where people are going to be and make sure they know about the program.« Elkind made sure to be present at the town's fireworks display, the peach festival, farmers markets and other events.

Besides answering basic questions, Elkind and the other volunteers were collecting people's contact information so they could follow up. Often, a representative from New England Breeze would join them at events to answer questions or, if necessary, jump on a laptop to do a quick site assessment of someone's house on Google maps.

Although Elkind insists that one of the elements that led so many people to sign contracts for PV systems was friends telling their peers about the merits of solar, that's not to say there wasn't a certain amount of hard selling going on. There's no doubt that self-interest was a powerful driver as the town got closer to each new and lower tier of pricing. »I had some personal interest because any capacity I could get added to our town would push me closer to another year shorter payback,« says Elkind.

The economics were so good for end users, in fact, that Mark Durrenberger, the founder and chief executive officer of New England Breeze openly wonders about the financial return for his firm. »I still have concerns about us making money. It's a good price, it's a really good price,« says Durrenberger. He added that when he submitted the RFP, $4 per W was $2 lower than the typical market price, although he now believes the residential market price has declined to the $4.50 to $5 per W range.

Still, Durrenberger is a big fan of the program and says it has accomplished some of the primary goals it set out to achieve. For one thing, he says that his cost to acquire customers in Harvard was tiny. »It was so nice to have a whole other marketing arm to the business,« he says. »The solar committee in Harvard really busted their hump in getting the word out and contacting people at every pubic event they had.«

As predicted, buying hundreds of kWs of modules at a time was a big benefit in driving down New England Breeze's costs. »Instead of going and buying a few pallets we can go and buy 15 pallets of panels and your conversation with the vendor changes dramatically,« says Durrenberger.

The Mass CEC, which pioneered the Solarize program, is hoping this approach will continue to spread PV across the Bay State. In mid-February, it announced that it would roll out Solarize Massachusetts to at least another ten communities. In Harvard, the Solarize initiative is continuing, albeit in a different way. In the original phase last year, some residents of the town couldn't participate either because of excessive shading issues at their homes or because they simply didn't act fast enough. »The CEC was interested in picking up those who tried to do Solarize and couldn't,« says Worth Robbins, the publisher of The Harvard Press, the local newspaper, who is spearheading the effort to build a community solar garden, which, thanks to the state's virtual net metering law, would allow individuals to buy shares in a large community project not on their home, yet still receive the same incentives and benefits as if it was.

Quickly, says Robbins, enough interest was expressed for him to move forward with a plan to install a total of 450 kW at two different sites. And once those projects are complete, Robbins says Harvard will look for other ways to bring more solar to town. Maybe Hollywood really should come calling. Chris Warren