



A PURPOSE-DRIVEN PPA

An installer has designed a power purchase agreement specially for nonprofits



A better future: Glenn Cummings, who heads the Maine Academy of Natural Sciences, yearns for more students and more solar. Maine's largest installer provides help.

Because the primary federal incentive for solar is the 30 percent investment tax credit, many nonprofits do not pursue photovoltaics. But recently, Revision Energy unveiled a power purchase agreement (PPA) that is exceptionally attractive to the schools and environmental organizations that do not pay Uncle Sam.

It would be hard to find an institution more perfectly suited to generate at least some of its power from the sun than the Maine Academy of Natural Sciences. Located on a 12.1-plus km² swath of forest and farmland about 48 km north of the state capital of Augusta, the origins of the high school go back to 1889 when George Hinckley founded it as a refuge for troubled youth. When it originally opened as the Good Will-Hinckley Home for Boys and Girls, there was no lack of need. »Lots of men from

Maine died in the Civil War,« says Glenn Cummings, the president and executive director of the school and the Good Will-Hinckley non-profit organization that manages and raises funds for it. »Post Civil War, there were a lot of orphans.«

The original philosophy behind the school remains largely unchanged. While academics are important, the curriculum revolves around hands-on learning, where students spend large portions of their days growing organic crops and tending to forests.

»It's all connected to sustainability and using the environment to sustain ourselves,« says Cummings, who was Deputy Assistant Secretary in President Barack Obama's Department of Education and is a former Speaker of the Maine House of Representatives. »Our gardens provide around 50 percent of the food we use in our own cafeteria.«

Given the school's emphasis on sustainability, the use of a renewable energy source like photovoltaics (PV) to provide some electricity for its main administrative building would seem to be a no-brainer. But the problem that the school faced in even considering PV is one that would be familiar to even the most ardently pro-solar environmental nonprofit. The tax-exempt status that is so important to the financial viability of nonprofits makes it impossible to take advantage of the lucrative federal investment tax credit (ITC). Put simply: without a tax bill, the value of the 30 percent tax credit is lost, making it just too steep of a financial hurdle to climb. »The initial upfront cost associated with an investment like this is formidable. From year to year, you put aside a little, but never the thousands needed for a full-scale investment,« says Cummings.

A door opens

Despite those formidable financial obstacles, the most prominent feature of the academy's circa-1915 Prescott Hall administration building may no longer be its huge clock tower. In February, the school was able to put in a PV system with nearly 29 kW capacity, thanks to a novel power purchase agreement (PPA) offered by Revision Energy, Maine's largest installation company. The system is expected to produce around 34,000 kWh of electricity annually.

The school is not the only Maine nonprofit to utilize Revision's custom-made PPA. At press time, Thomas College in Waterville was set to use the PPA to finance the installation of a 167

kW system, the largest in the state. Revision says it has a queue of between 30 and 40 other projects in the works as well.

Given that there are so many PPA providers around the country, what makes Revision's offering so unique? Like other providers, the company finances, builds and owns the solar systems that go onto the roofs of Maine's schools and environmental nonprofits. Revision also takes advantage of the tax benefits, depreciation and state incentives available and then sells the electricity generated at a price lower than the utility for a period of 20 years. But that is where the similarities with traditional PPAs end.

Revision co-founder Bill Behrens insists that while his company puts together the financing for the projects, it is not a traditional PPA investor looking for returns in the 10 percent or higher range. »As wrench turners and mechanical contractors, we are not financial investors,« he says. »If we cover our costs and break even, then we are happy.« As proof, Behrens walks through the details of how his company's PPA benefits the nonprofit world.

For one thing, each agreement begins with the goal of the nonprofit buying the PV system from Revision after 6 years, at a greatly reduced price tag. For the Maine Academy of Natural Sciences, that means paying a total of \$37,000 – a portion of which the school is currently putting away each year – instead of the upfront bill of \$130,000. If it turns out that the fair market value of the system is higher than the amount needed for the installer to cover its costs, then the extra money gets donated to the nonprofit. And if a school or hospital is not able to pony up the money to purchase the system, they can just continue purchasing energy from Revision at a discounted rate.

Another benefit is that Revision has partnered with Coastal Enterprises Inc. (CEI), a Maine-based nonprofit community development bank. The fact that a big portion of the financ-

ing for the projects comes from CEI means that the rates the installer pays are relatively low, a benefit the company passes on to the nonprofits. »The cost of borrowing is half what it would be,« says Behrens, noting that Revision pays about 4 percent while commercial bank rates are closer to 8 percent. »That is helpful to the nonprofits as well, because the financial cash flow is better than it would be with a commercial bank.«

Another wrinkle to the PPA is that Revision revisits the terms of the deal each year to ensure that the assumptions it built into the contract are correct. In other words, no matter what happens to electricity rates, non-profits will always pay 2¢ less per kWh than they could get from the utility.

Lack of scale

At a time when many believe natural gas prices will drive electricity rates down – and after some PPA customers are finding themselves buying solar energy at prices that no longer seem like a bargain – that flexibility provides a level of comfort for cash-strapped nonprofits. But while the program has been received warmly – especially considering the fact that Maine is such a small solar market – don't expect this approach to suddenly supplant profit-driven solar PPAs. »It's unique, but it suffers from lack of scale because you can't sell it to Wall Street,« says Fortunat Mueller, another co-founder of Revision.

Still, by allowing organizations that have sustainability at the forefront of their priorities to go solar in an economically viable way, the installer should be able to nudge the market size of Maine upwards. And in the process, doing a lot of nonprofit solar might also lead to more profitable work for the company. »Our real goal is to get solar in the hands of colleges, universities and towns who would do well to do this,« says Behrens. »We spread solar in the region, and they all have houses that might want solar, too.«

Chris Warren



Maine fact sheet

BASICS

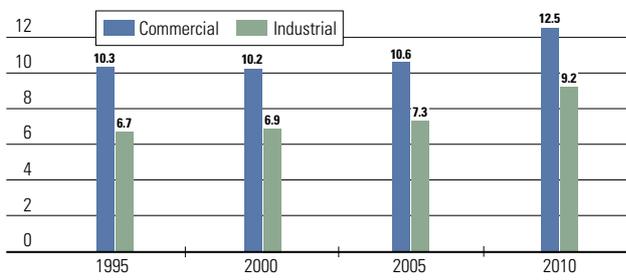
Population

1,328,188
Source: US Census Bureau

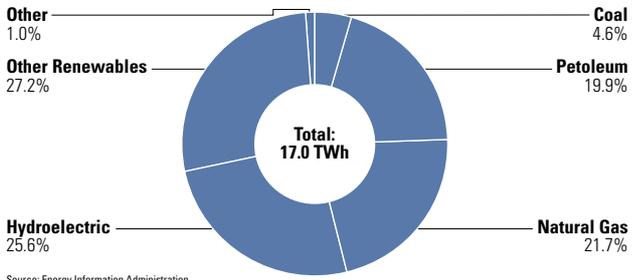
Utility structure

Prior to restructuring the Maine electric industry in the 1990s, the state's three major investor-owned utilities – Central Maine Power (CMP), Bangor Hydro-Electric Company (BHE) and Maine Public Service (MPS) – were involved in both generation and distribution. Today, unregulated competitive electricity companies produce electricity while the regulated utilities handle transmission, distribution, metering and billing.

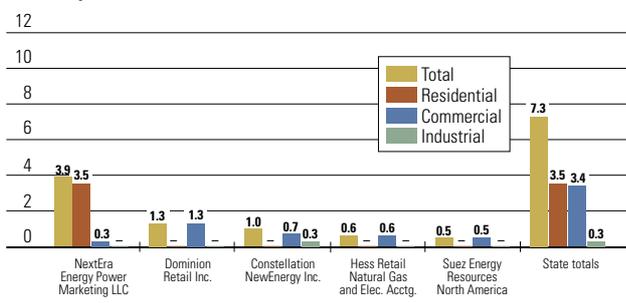
Electricity prices (¢/kWh)



Electricity generation 2010



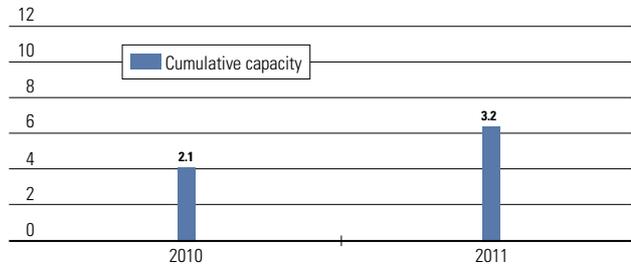
Electricity sales 2010 (TWh)



PV system prices

Residential: \$3.40 - \$4.15 per W (DC)*1
Commercial: \$3.25 - \$4.00 per W (DC)*2
*1 \$4.15 per W is the average price reported by Efficiency Maine, which runs the rebate program, though installers report lower prices.
*2 Efficiency Maine does not keep track of commercial prices – this range is what is reported by installers; despite little competition among installers, prices for PV installations are low and trending downward.

Installed PV capacity (MW)



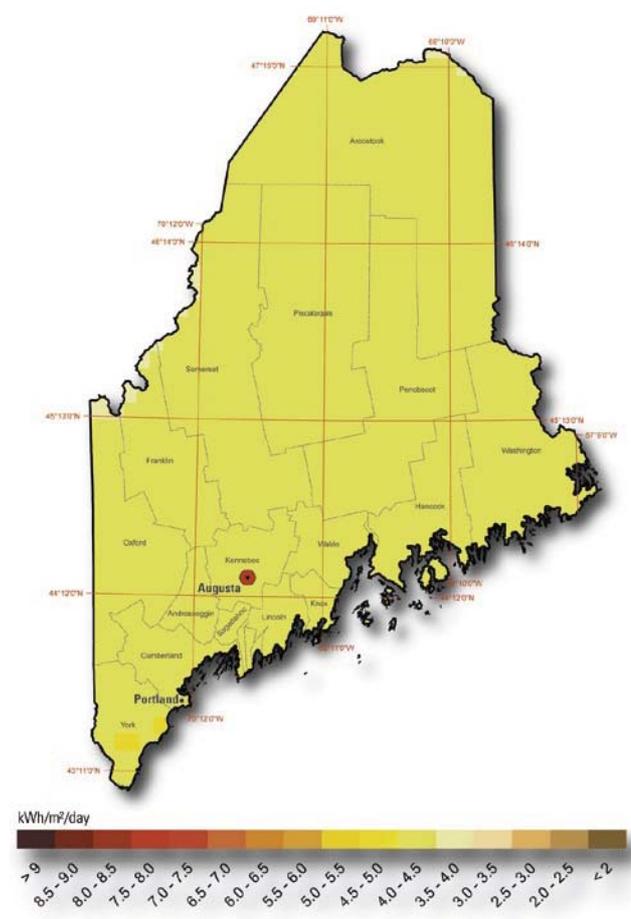
PV installed capacity per capita 2011

2.4 W

Percentage of total electricity consumption from solar

0.06%

Irradiance



Source: This map was generated by the National Renewable Energy Laboratory for the US Department of Energy

Profiles past and present

Canada

Ontario (PHOTON 2/2010)

USA

Alabama (PHOTON 3/2012)

Arizona (PHOTON 7/2010)

Arkansas (PHOTON 6/2010)

California (PHOTON 10/2011)

Colorado (PHOTON 4/2010)

Connecticut (PHOTON 1/2010)

Florida (PHOTON 10/2010)

Georgia (PHOTON 4/2011)

Hawaii (PHOTON 8/2010)

Idaho (PHOTON 3/2010)

Kentucky (PHOTON 9/2012)

Louisiana (PHOTON 2/2012)

Maryland (PHOTON 7/2012)

Massachusetts (PHOTON 4/2012)

Michigan (PHOTON 6/2012)

Mississippi (PHOTON 11/2010)

Nebraska (PHOTON 9/2010)

Nevada (PHOTON 1/2011)

New Hampshire (PHOTON 8/2012)

New Mexico (PHOTON 2/2011)

New York (PHOTON 7/2011)

North Carolina (PHOTON 11/2011)

Oregon (PHOTON 6/2011)

Pennsylvania (PHOTON 9/2011)

Rhode Island (PHOTON 8/2011)

South Carolina (PHOTON 5/2012)

Tennessee (PHOTON 5/2010)

Texas (PHOTON 12/2009)

Utah (PHOTON 1/2012)

Vermont (PHOTON 5/2010)

Washington State (PHOTON 12/2011)

West Virginia (PHOTON 3/2011)

Puerto Rico (PHOTON 12/2010)

SUPPORT

Net metering

Net metering has been available in one form or another since 1987. Currently, customers of both investor-owned utilities and consumer-owned utilities, which include cooperatives and municipalities, can take advantage of net metering. There is a 660 kW maximum system size limit for those in the service territory of investor-owned utilities and a 100 kW limit for all others. There is no overall aggregate capacity limit specified in the net-metering legislation. System owners generating more energy than they consume get a credit at retail rates on their next month's utility bill. Those credits roll over for 12 months, at which point they are granted to the utility. The state also allows net meter aggregation of up to 10 meters. For more information, go to www.maine.gov/mpuc

Rebates

The Efficiency Maine Trust administers the statewide rebate program supporting renewable energy, including photovoltaics. The rebate provides a maximum of \$2,000 for residential systems and \$4,000 for commercial. The incentives are based on estimated production, with \$500 available for every 1,000 kWh of annual production. For more information, go to www.efficiencymaine.com/renewable-energy

ADDITIONAL INFORMATION

Significant renewable energy laws

L.D. 1586 was enacted in 2005 and created a rebate to support photovoltaic (PV) and solar thermal installations at residences and businesses.

H.P. 1038, known as the Act Regarding Maine's Energy Future, created the Efficiency Maine Trust, which had previously been a part of the Maine Public Utilities Commission (MPUC). The new quasi-independent state agency administers the solar rebate program. Due to a mistake, the law sunset the solar rebate program, leading some to call for a legislative fix in 2013.

Maine's original renewable portfolio standard (RPS) was passed in 1997 as part of a larger restructuring of the state's electricity market. The law requires the state's electricity providers to verify that 40 percent of their sales come from renewable resources by 2017. Thirty percent of that amount can come from existing renewable generators, while 10 percent must come from newly installed sources.

Largest PV system in the state

111.3 kW rooftop system at The Step Guys, a concrete company in Alfred, Maine.

INDUSTRY

Jobs 2012

PHOTON estimate: 40

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