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The Benefits of Solar With the Beauty of Trees

By TODD WOODY

DAVIS, Calif. - IN this environmentally conscious college town, thousands of bicyclists commute each day through a carefully cultivated urban forest whose canopy shields riders and their homes from the harsh sun of this state's Central Valley.

The intensity of that sunshine also makes Davis an attractive place to generate clean green energy from rooftop solar panels. And therein lies a conundrum. Tapping the power of the sun can also mean cutting down some of those trees.

"Davis has spent many, many decades getting trees planted and improving energy efficiency by virtue of shade trees that cool houses," said Mitch Sears, the city's sustainability program manager. "But if you want [solar energy](#), it's not rocket science that you need the sun."

Now a San Francisco company, CleanPath Ventures, is promoting a solution to allow homeowners to keep their trees and go solar at the same time. CleanPath plans to expand its existing solar farm on the city's outskirts and then sell "garden plots" to homeowners who would own the electricity generated by their patch of photovoltaic panels. Apartment dwellers and other residents whose homes are not suitable for rooftop solar arrays would also be able to own a piece of the power plant.



COMMUNITY SOLAR PLOTS Matt Cheney, left, the founder of CleanPath Ventures, with Mitch Sears, a Davis, Calif., environmental official. CleanPath has found a way to allow homeowners to keep their trees and still have solar panels.

"If you moved down the block, you'd take the electricity production with you just like if you make an investment in a community garden, wherever you live you'll benefit from what's grown in the garden," said Matt Cheney, a longtime financier of renewable energy and the founder of CleanPath Ventures.

Community solar power plants are seen as a way to expand the availability of renewable energy while taking advantage of the economies of scale that result from installing thousands of solar panels in a central location rather than scattered on thousands of individual homes.

"To get the energy benefits of solar there's no reason to drill holes in a roof," said Jim Burke, manager of the SolarShares program for the Sacramento Municipal Utility District, which serves the region surrounding the state capital.

The utility, known as SMUD, started SolarShares, one of the nation's first community solar-power-plant programs, in July 2008 when it offered customers the opportunity to buy electricity from a 1.2-megawatt photovoltaic power plant built on a turkey farm southeast of Sacramento.

"People love solar, but we required you to own a roof" and that it face a certain way, said Mr. Burke. "Multifamily buildings were usually excluded and renters were excluded."

Then there was the tree issue.

"SMUD has planted hundreds of thousands of trees to shade rooftops and then with solar we're saying cut them down," he noted.

The SolarShares program gives customers the option of buying power from a half-kilowatt or a one-kilowatt portion of the solar farm. For instance, for a household that uses 2,158 kilowatt-hours a year, a one-kilowatt solar system would cover about 81 percent of their electricity consumption and cost \$21.50 a month. However, the household would receive a monthly credit for the solar electricity produced that would average \$13.96.

The pilot SolarShares program sold out within six months and there's now a waiting list, according to Mr. Burke.

He said SMUD was planning a one-megawatt community solar-power plant that would be built next year and was exploring the placement of up to four megawatts of solar farms on highway rights-of-way owned by the state transportation agency.

Like a community solar farm in St. George, Utah, and a proposed solar garden in Falmouth, Mass., the CleanPath project in Davis would offer residents the chance to buy a physical part of a solar farm.

The Davis City Council in September passed a resolution supporting the expansion of an existing solar power plant, known as P.V.U.S.A. — Photovoltaics for Utility Scale Applications — from around 1 megawatt to 15 megawatts. CleanPath Ventures is seeking a federal loan guarantee to build the project, according to Mr. Cheney.

Surrounded by farmland, the original P.V.U.S.A. facility was built in 1987 by Pacific Gas and Electric as a test bed for photovoltaic technologies. It was eventually acquired by one of Mr. Cheney's companies, which sells the electricity generated by the power plant to the city. Today it is a working museum of photovoltaic history, where jackrabbits bound between two-story solar panel arrays that continue to generate electricity as well as defunct futuristic-looking devices destined for the technological scrap heap.

While Davis's municipal code bars the planting of trees that would shade existing rooftop solar panels, the city's Tree Commission cannot authorize the removal of a tree to permit the installation of a photovoltaic array.

Many older neighborhoods "have well-established tree canopies," said Mr. Sears, adding, "I started thinking of how we might be able to take advantage of the expansion of P.V.U.S.A. and allow property owners to buy into the project directly."

He cautioned that the program was in the early stages of planning and the community's interest in purchasing a stake in the P.V.U.S.A. project and the financing mechanism still had to be determined. (Mr. Cheney favors adding a surcharge to participants' water bills.) The city would also need to obtain a change in state law to allow it to buy more electricity from an expanded solar farm.

Tree Davis, a prominent local group that promotes the planting of an urban forest, has not taken a position on the solar-tree issue, according to Keren Costanzo, its executive director.

Another unknown, according to Mr. Sears, is the economic impact on local residential solar installers should people opt to buy a plot in a solar farm rather than put panels on their roofs.

But Danny Kennedy, founder of Sungevity, an Oakland, Calif., solar installer that operates in Davis, said the potential solar market remained vast.

“We are not worried this will cannibalize our business — on the contrary it will lift all boats by raising awareness of the benefits of solar electricity,” Mr. Kennedy said in an e-mail.

Jonathan Bass, a spokesman for SolarCity, a Silicon Valley solar installer that also works in Davis, noted that his company had built a solar farm in Arizona for a housing development.

“Solar gardens are an interesting concept as a way to allow those who can’t directly produce solar electricity on their properties, such as most renters, to participate in clean power production,” he said in an e-mail.

Mr. Cheney, who grew up in Davis, said it made no sense to cut down trees that cooled homes and thus reduced the need to turn on electricity-hogging air-conditioners during the Central Valley’s sweltering summers.

“As long as I’ve been alive, they’ve been planting trees in Davis and they have this wonderful canopy,” he said. “If you have a beautiful oak tree over your house, I can guarantee that you don’t want to cut that thing down, but you do want solar.”

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