

NORTHEAST

Study: Connecticut could conserve land by installing solar above parking lots

A study published in the current issue of *Solar Energy* shows that Connecticut could generate more than a third of the state's annual electricity consumption with solar canopies built over large, existing parking lots.



by Lisa Prevost
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A solar canopy at the Hotel Marcel in New Haven. Credit: Earthlight Technologies / Courtesy

Connecticut could greatly expand its solar energy capacity without displacing farms and forests, according to a [study published](#) in the official journal of the International Solar Energy Society.

The study, which appears in the current issue of *Solar Energy*, identified 8,416 large parking lots across the state that are suitable for power-producing solar canopies. Together, those sites could generate 9,042 gigawatt-hours annually, the equivalent of 37% of the state's annual electricity consumption.

“It's not that we can do everything in parking lots — we're still going to need some utility-scale arrays,” said Mark Scully, the president of People's Action for Clean Energy, or PACE, which commissioned the study. “But there are significant advantages to putting them on this already-degraded real estate. And they can be placed in environmentally disadvantaged and underserved communities.”

Solar canopies are elevated structures that sit over land already being used for something else. They can provide shelter from the elements for parked vehicles, reduce the urban heat island effect, and support electric vehicle charging stations.

Because the siting of solar in Connecticut can be highly contentious when projects are proposed for farms or woodlands, Scully said, PACE wanted to figure out what the potential is on existing paved sites.

Kieren Rudge, an operations manager at PACE and a graduate student at the Yale School of the Environment, found a database of all impervious surfaces in the state that was previously created by the University of Connecticut and the state Department of Energy and Environmental Protection.

Rudge was able to identify parking lots with at least 100 spaces, and only included those in the calculations. He then used a solar installer software tool, as well as guidance from professional solar installers, to determine the canopy siting potential on a sampling of sites. The samples then enabled him to come up with an estimate for generation across all the sites.

Scully said PACE is using the information from the study to run initiatives with individual towns, showing them potential sites for canopies and raising awareness of the technology.

Policymakers have yet to prioritize the potential of solar canopies, he said. The Department of Energy and Environmental Protection's [2020 Integrated Resources Plan](#), an assessment of and outline for the state's future energy needs, only includes a passing reference to parking lot canopies. And unlike Rhode Island and Massachusetts, the state does not incentivize the adoption of solar canopies, which are more expensive than rooftop and ground-mounted solar because of the concrete foundation and steel structure required.

However, in its most [recent review](#) of the state's community solar program (called the Shared Clean Energy Facility Program), the state Public Utility Regulatory Authority has proposed a future 30% bid preference for projects built on carports or canopies. The regulators reasoned that the preference will encourage the use of underutilized space, and reduce the environmental impacts of ground-mounted solar.

Scully said bid preferences are welcome, as they will help a solar canopy project to win a bid. But they won't influence the compensation to the projects, which should ideally be higher to offset the installation costs, he said.

PACE hopes to persuade lawmakers next session that the state should adopt a tariff “adder” for solar canopies.

Rhode Island has such an adder program through its [Renewable Energy Fund](#). To date, six carport projects have received awards, ranging in size from 21.5 kilowatts to 240 kilowatts, according to a spokesperson for the state Office of Energy Resources.

In addition, in the past two years, another six projects received awards through the state's Renewable Energy Growth program, which enables customers to sell their power under long-term tariffs at fixed prices.

Tim Schneider, the chief executive officer of Earthlight Technologies, a solar developer based in Ellington, said solar canopy potential is also hampered by what industry advocates view as the state's anemic caps on the amount of credits available every year through the state's ZREC and community solar programs. Those programs award long-term compensation to owners for their power generation.

“There are a lot of solar projects waiting and ready to go that can't get done,” Schneider said.

Earthlight has developed about 10 solar canopy projects in Connecticut. These include canopies covering parking lots at the Vernon Police Department and an adjoining elementary school, as well as the parking lot at the Hotel Marcel, a net-zero-energy, boutique hotel currently under development in New Haven.

The town of Fairfield has solar canopies at four school campuses and its Parks and Recreation Department lot. The projects were financed through power purchase agreements, which offer a flat rate per kilowatt-hour at a lower price than current charges, said Bob Wall, chair of the town's Sustainable Fairfield Task Force. There are no upfront costs to the town, and the systems are managed by third-party owners.

“As far as aesthetics go, opinions are divided,” Wall said. “Some believe they are an eyesore, ignoring the fact that the alternative is a not-particularly-scenic asphalt parking lot. Others see the structures as elegant and cutting edge.”

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Lisa Prevost is a longtime journalist based in Connecticut. She writes regularly about housing, development and business for the New York Times. Her work has also appeared in the Boston Globe, CNBC.com, Next City and many other publications. She is the author of “Snob Zones: Fear, Prejudice and Real Estate.” A native New Englander, Lisa covers Connecticut and Rhode Island.

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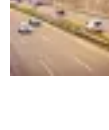
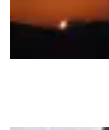
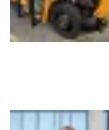
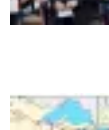
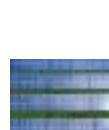
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