**Solar Sprawl**

BURGEONING SOLAR PROJECTS REIGNITE DEBATE ABOUT PRESERVING A PLACE’S RURAL CHARACTER WHILE ALLOWING ENOUGH ENERGY AND REVENUE-GENERATING DEVELOPMENT

By Alexa Kuffner  Journal Staff Writer

A solar project under construction off Kilvert Street in Warwick. (The Providence Journal / Steve Zylkowski)

**Growing solar in R.I.**

One megawatt of solar capacity can meet the electric needs of about 130 homes. One megawatt requires 4 to 6 acres of open space.

**See Proviso, A11**

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**SAVINGS INSIDE**

**IN COUPON**

**AS MUCH AS**

$3.50

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**SPORTING GREEN IN NEWPORT**

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SOLAR-FRIENDLY BILLS SEND DEVELOPERS SCRAMBLING FOR BIG, OPEN SPACES

By Alex Kuffner
Journal Staff Writer

PROVIDENCE – Until a few years ago, a ball player on Rhode Island’s coastal areas was just another player, with the attention focused on the ball. But with the increase in wind turbines, like the trio on the horizon off Pawtuxet Village in Newport, Providence, and then the offshore wind farm coming to Block Island, the first project of its kind in New England, the attention has shifted.

Apart from an East Coast wind farm being dreamed and a capped landfill, projects harnessing the sun’s energy have already set up shop. The state even has a plan to create a sun path.

Rhode Island is in the midst of a solar land rush. Spurred by a raft of renewable energy incentives passed by the General Assembly over the past five or six years, developers are seeking out sites, at times fairly large, to install ever-larger projects. In the absorbent state of Rhode Island, programs that prioritize solar energy, tax incentives for renewable energy, and a state board that factored in the inherent value in trees and forest fragmentation have created a situation for which there is more demand in some areas.

They ask whether any of the state’s energy requirements can be considered green if it requires the sacrifice of so many green trees.

The city has been nimble, perhaps because of its small size, but even the mid-sized cities have responded.

“Back in 1996, this was the beginning of a clean-up movement, so we had no waste to land,” says John DiCarlo, the Westerly director of the Department of Public Works. “The city has been very active in terms of looking into solar, with one thing leading to another. It’s a growth industry, and it’s one thing that solar developers need, it’s land. The general rule of thumb is that for every megawatt of power at 40 acres of space is needed. It adds up quickly for a project like the one in western Cranston, which occupies 108 acres, the equivalent of 82 football fields or nearly 875 acres, the biggest ones in the works.

Some of the large-scale Developer Partners is in the process of finalizing a proposal for a 40-megawatt solar project in the state Office of Energy Resources. Newport’s Turning Point Energy is working on a 32.7-megawatt project in North Kingstown.

Green Development, the state’s largest company formerly known as Wind Power, is looking to install turbines in Coventry, has submitted plans for a 20-megawatt array in Exeter, as well as three others totaling 14.2 megawatts. It has also raised the possibility with officials of an additional 30-megawatt in that town alone.

Supporters of the increasing projects say they’re necessary to meet Governor Gina Raimondo’s executive order issued last year to generate 20,000 megawatts of renewable energy by 2020 from both in-state and out-of-state sources. Curing the carbon emissions that were generally less than one megawatt in size, it has seen a recent growth in large-scale facilities and commercial sites like the Quinnipiac Sunrise Park in North Kingston.

But the passing of a series of solar-friendly bills by the General Assembly has sent developers scrambling to find big, open parcels of land in rural areas of Rhode Island for vast fields of solar, photovoltaic photovoltaics that can number in the tens of thousands.

Driving solar’s growth is the fact that a number of local governments, interconnection and permitting agreements have been signed at a different location from where the power is used.

The amendment recognized the difficulty of building large solar or wind projects in densely developed places like Providence. It made possible, for example, the Narragansett Bay Commission’s use of power from wind turbines installed in Coventry. The original amendment offered the option to state and quasi-state agencies, municipalities and public schools. It has since been expanded to nonprofits, hospitals and large businesses.

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The solar cell wafer consists of two types of silicon, N-type and P-type, while those on the underside have electrons.

An electro-magnetic field is created where the electron meets.

When sunlight strikes the top side, electrons are knocked loose from their atoms, leaving holes behind. The holes have a positive charge and are attracted to the bottom of the cell, just as the electrons are repelled from the top.

The electrons on the top want to reunite with the holes below but the electro-magnetic field is a barrier. So, the wafer is swept around the silicon wafer provides a pathway to the other side.

This movement of electrons creates an electric current.
Burgeoing growth of solar projects across the state

Robert Knight

Solar is not only spreading throughout Rhode Island, but individual projects are getting bigger.

In 2011, Rhode Island had only 1.2 megawatts of installed solar capacity. The latest figure from the U.S. Department of Energy is 4,344 projects, according to National Grid, the utility that owns the bulk of the state's power grid.

An additional 231 projects are proposed that would add another 29.5 megawatts.

The industry's growth is tracked in the largest solar installation in any town in recent years.

For example, United Citizens of Smithfield has installed a 127-kilowatt system on roof space at its headquarters off Valley Street in Providence.

There's more by reviewing engineering.

“Every installation is unique,” he says. “Some projects are siting the poles within the streetscape to improve the balance and aesthetics.

There are also projects that are at a lower cost of development. Some also cannot change from the ground was a key part of the evaluation to make sure the aesthetics of the project were preserved.

Rhode Island Power also has a goal of having 10,000 systems to go online every year, and that projects are being developed as a result.

The state’s responsibility to step in and play a role, and to use solar as a renewable energy source that nearly eliminates the need for fossil fuels.

By “solar” development, we mean the process of converting solar power into electricity that can be used for various purposes. Solar power is not a new concept, but recent advances in technology have made it more viable and accessible than ever before.

Rhode Island has been working on solar projects for several years, and the state has set a goal of having 70,000 systems online by 2020. This would require a significant amount of investment, but the potential benefits are significant. Solar power is clean, renewable, and does not contribute to climate change.

In addition to the state’s goal, there are also federal programs that support the development of solar energy projects. The federal government has set a goal of having 20 gigawatts of solar capacity in place by 2020.

The renewable energy industry is growing rapidly, and solar power is expected to become a major source of energy in the coming years.

Overall, the state of Rhode Island is making significant progress in developing solar energy projects. The state is committed to transitioning to a clean energy future, and solar power is an important part of that transition.