EcoMotion *– Sustainability Solutions*

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Residential Solar-Ports
A Pictorial Review of Household Options

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This is a briefing for homeowners who are interested in solar, but lack suitable roof "real estate" and space for ground-mounted solar. In these instances, solar carports – or "solar-ports" – are an option for consideration. The following review of residential solar-ports and shade structures is cursory. Cost and energy production values are project-specific, varying depending on factors such as location, size, regulations, and technological capabilities.

Introduction

Presented herein is a quick review of some options for residential solar carports, known also as solar-ports. We hope that the pictorial review is inspiring for some and instructive for others. As with all aspects of solar, the use of solar carports and shade structures is in sync with the rapidly evolving solar field.

Image courtesy of Lumos Solar

The use of solar carports – or what we call “solar-ports” – and shade structures is gaining momentum. These configurations offer homeowners the opportunity thanks to a new place to harness solar power and to provide shade. Solarports integrate photovoltaic panels into structures, allowing homeowners to generate their own clean electricity, power electric vehicles, or in cases to store energy for later use. With advancements in solar technology and energy storage systems, the design and manufacture of residential solar carports and shade structures is set to grow and provide innovative solutions for homeowners looking to embrace a greener future. Some semi-transparent systems provide attractive partial shading.

Image courtesy of BLIKIR

Solar-Port Configurations

As the supply and variety of residential solar carports expands, there are more options for homeowners to incorporate solar energy into their homes. From single-vehicle DIY kits to aesthetically pleasing timber structures that accommodate multiple vehicles, solar carports offer versatility in design and integration. The solarports can also be paired with batteries for energy resilience. With ongoing technological advancements and increasing environmental consciousness, residential solar carports are poised to become a nice complement to power systems for sustainable living in instances where rooftop and ground-mount systems are not desired or feasible.

Image courtesy of Solarstone

Although they are a relatively new solar configuration, residential solar carports are not limited by a lack of configuration and design options. Homeowners now have the opportunity to choose from a wide range of designs. The first consideration to be made when contemplating whether or not to invest in a solar carport is space constraints. Single-column carports are an ideal configuration for homeowners with spatial concerns as there is only one row of support columns, allowing for vehicle access and mobility. Homeowners with more space may choose to install a double-column carport which consists of two parallel rows of support columns while accommodating more vehicles, providing more shade, as well as more roof space for solar panel installation. Another configuration that accommodates limited space and unobstructed parking space is a cantilevered carport which has support columns on only one side of the structure. Cantilevered carports can be standalone structures if space is available to the homeowner but they can also be incorporated into the existing structure of the house.

Image courtesy of Kern Solar Structures

Selection Parameters

Aside from spatial limitations, other considerations come into play when deciding on a carport configuration such as aesthetics and maximizing sun exposure. Homeowners can be quite picky about the way that carports contribute to the overall appearance of the property which is why there is a wide range of designs and looks for solar carports. SunCommon, a solar company based in the Northeast, designs solar canopies and carport structures using aesthetically-pleasing timber frames. The Brooklyn Solar Company, based in New York, designs standalone canopy structures. There are many, and the list is growing, businesses that are designing, manufacturing, and installing solar carports. Now this form of solar has come to homes… the residential sector… adding a new dimension and set of opportunities for solar.

Image courtesy of SunCommon

Image courtesy of Brooklyn Solar Company

Carports are designed and constructed with efficiency and solar exposure in mind. Residential carport structures are best designed with tilted roofs and ideal southern or south-western orientation to optimize power generation. Considering aesthetics, energy efficiency, and spacing altogether, homeowners can decide on structures that seamlessly integrate solar panels into the canopy structure. By opting for an integrated solar carport where the roof structure is made almost entirely out of solar panels, homeowners can add a source of shade and solar power to their homes while prioritizing style and sustainability. Dual-purpose carports integrate energy storage and/or electric vehicle charging into their structure.

Image courtesy of SunnyCal Solar

When deciding upon a solar carport configuration, homeowners must be familiar with the many options available as well as consider critical factors like available space and energy production capabilities of a given carport structure. Consulting with a solar energy professional can help determine the most suitable option for homeowners, ensuring optimal energy production and functionality while meeting the needs of the homeowner. By embracing and investing in residential solar carports, homeowners can save money on their energy bills all while pursuing a greener future.

Image courtesy of Solar Carports Direct

As the solar industry continues to grow rapidly, so do opportunities for homeowners to sustainably generate energy and decrease their ecological footprint. Residential solar carports are just another example of how innovation continues to guide us toward a sustainable future where environmentally friendly practices are the status quo.

Directory of Residential Solar Carport Providers

1. Lumos Solar
2. Kern Solar Structures
3. Solar Carports Direct
4. SunCommon
5. Solarstone
6. LA Solar Group
7. BLIKIR
8. CalState Solar and Construction
9. MTSolar
10. Brooklyn Solar Canopy
11. Burke Electric
12. SunnyCal Solar
13. Sol Sierra Inc.