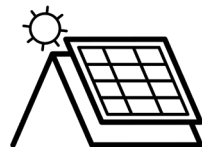




# S-5- PVKIT® 2.0 & RibBracket™ III

Case Study — Montserrat Utilities Limited, Government of Montserrat



## At-A-Glance

### Project Name

Montserrat Utilities Limited

### Location

Montserrat, British Overseas Territory,  
The Caribbean, West Indies

### Developer

Government of Montserrat/  
Montserrat Utilities Limited

### EPC

SALT Energy

### Roof Profile

Trapezoidal Ribbed Metal Roof,  
12.8 inches (325 mm) on center

### Industry

Government

### Situation

The government of Montserrat wanted to reduce its dependency on imported fossil fuels by supplementing the island's power generation with solar PV on three of its facilities.

### The Result

S-5!'s RibBracket™ III, specifically designed for this roof profile, and the S-5-PVKIT® 2.0 allowed for rail-less PV mounting to the exposed-fastened metal roof.

### Project Stats

**Roof Measured:** 26,680 square feet  
over three buildings

**Roof Pitch:** 5 degrees, 7 degrees and  
14 degrees, respectively  
for the three buildings

**Total Project Size:** 1MW-AC solar PV

- **Phase I:** 288 kW-DC solar, 250 kW-AC:  
824 solar panels, each panel  
is 350 watts
- **Phase II:** 870 kW-DC solar, 750 kW-AC:  
2000 solar panels, each panel  
is 435 watts

### S-5! Products Supplied:

- RibBracket III (3,315)
- S-5-PVKIT 2.0 (3,315)



## The Project

Montserrat is a mountainous Caribbean island, a British Overseas Territory, in the West Indies. Like many island nations, Montserrat is almost entirely dependent on imported fossil fuels, leaving it vulnerable to global oil price fluctuations directly impacting the cost of electricity.

With 45% of the island's imported fuel used solely for electricity generation, the government understands the value of investing in renewable energy sources and has formulated a robust national energy policy towards self-sustainability, representing the desire of the Montserrat people to improve the country for this and future generations. Solar would be the quickest way to achieve this.

Upon consultation with local, regional and international partners, they determined the best path forward would be to incorporate solar photovoltaics (PV) and battery storage into their electrical infrastructure—three government buildings normally powered by high-cost power from diesel generators.

This was the first phase of two planned renewable energy projects to reduce the dependence on fossil fuel for power generation. Phase one, 250kW of rooftop solar PV, provides 10% of the grid's peak daytime demand. Phase two will consist of an additional 750kW of solar and nearly 1100kWh battery storage, which will collectively provide 45% of Montserrat's daytime peak electrical load.

## The Challenge

Numerous challenges presented themselves due to the age of the roof and the remote location of the island. The 15-year-old, trapezoidal metal roof profile is common in the Caribbean but limited the customer's options for mounting solar as few products exist for this particular roof profile without the need for custom-designing an expensive solution.

In addition, the area is prone to hurricanes so the design wind load requirements necessitated a product capable of withstanding 180 mile per hour wind loads.

Furthermore, shipping logistics presented a challenge to this remote island. Transporting traditional rail would be extremely costly and suffer long delivery times since there is no direct shipping from the United States.

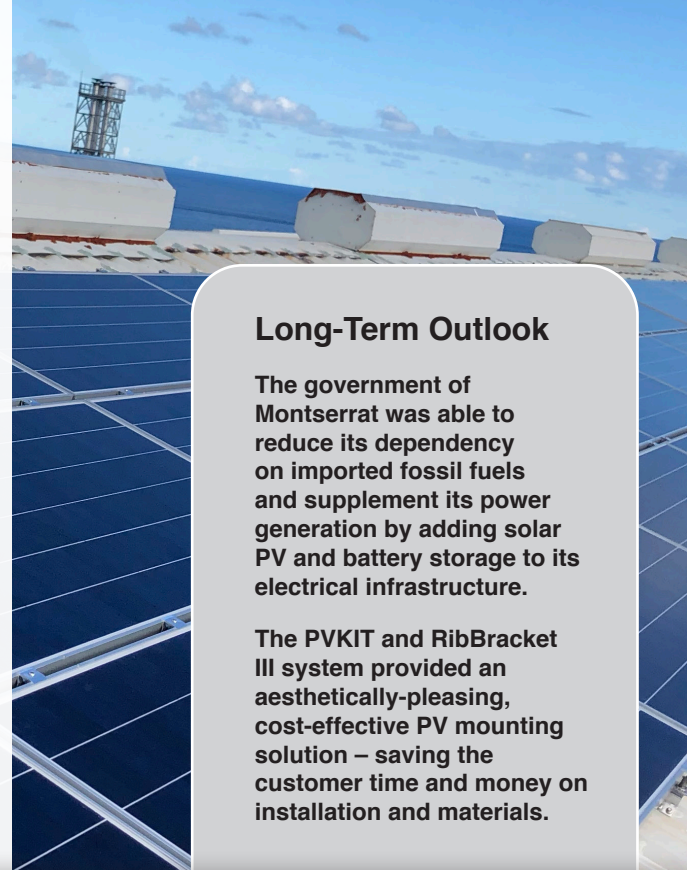
## The Solution

EPC Contractor, SALT Energy, employed local subcontractors to install and wire an 824-solar panel PV system across five slopes of three buildings. The integration of this new power source means the citizens of Montserrat can expect greater savings on their electricity bills, greater fuel savings and lower fuel surcharges.

Use of S-5!’s revolutionary **RibBracket™ III**, specifically designed for this unique roof profile, and the **S-5 PVKIT® 2.0** solar solution, allowed for direct-attach or rail-less PV mounting to the metal roofs and were engineered to withstand area hurricanes winds for this project.

Using this approach to solar mounting provided a significant decrease in the amount of material required to ship. A traditional, three-rail system would have involved 10,000 feet of rail and required a full 40-foot container to ship. S-5! provided six attachments per module shipped on ONE standard palette—a 50% savings on product cost and 70% on shipping!

It also meant the PV panels could be directly-attached to the ribs of the exposed-fastened metal roof, providing for installation efficiency and flexibility every 12 inches (N-S) for placing the attachments directly into the roof. This distributed the load more prudently and uniformly into the trapezoidal panels, also by staggering the attachments on alternating ribs.



## Long-Term Outlook

The government of Montserrat was able to reduce its dependency on imported fossil fuels and supplement its power generation by adding solar PV and battery storage to its electrical infrastructure.

The PVKIT and RibBracket III system provided an aesthetically-pleasing, cost-effective PV mounting solution – saving the customer time and money on installation and materials.

“SALT Energy serves the most demanding market in the U.S. and the Caribbean for solar installations due to projects in High-Velocity Hurricane Zones and coastal exposure by the Atlantic Ocean. Our design wind load requirements are the highest in the U.S. Attachment engineering is at the heart of every project we do, and we choose only the highest quality products. That’s why we rely on S-5! for our attachment needs.

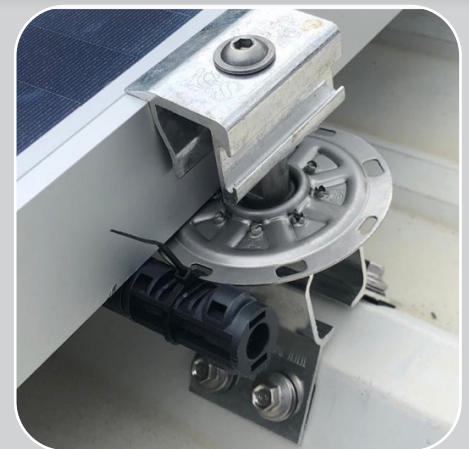
Their portfolio of products for different metal roof types stands at the top of the market by all measures, including quality, performance and price. The product testing S-5! provides is the most thorough in the industry and an essential component of SALT’s engineering for each project. From SolarFoot™ to RibBracket™ to S-5!’s clamps and the PVKIT®, S-5! products and its people are simply the best!”

—David Kaul, Operations and Engineering Director, SALT Energy



## How Did the PVKIT Help?

- Cut material costs in half, and freight costs by 70%
- Cut installation costs in half
- Minimized the amount of time workers must spend in harness
- Reduced the added dead load of mounting components by 85%



S-5-PVKIT® 2.0



The Right Way!® | (888) 825-3432 | [www.S-5.com](http://www.S-5.com)

