

## ContainerPower Energy Solutions

# Solar systems under pressure



## Overview

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Can severe weather damage a solar PV system?

Severe weather events strong enough to cause damage to a solar PV system occur in nearly every region of the country. The Federal Emergency Management Agency (FEMA) produces a National Risk Index (NRI) which details 18 weather and environmental parameters at a county level. Use the NRI tool to look up weather risks at your site.

Are solar PV modules a problem?

The severity was significantly greater in inadequately secured solar PV module systems, which suffered a complete detachment of modules from the fixed rooftop, resulting in substantial losses for the end-users.

How does wind affect solar PV?

Wind across solar PV modules can create negative pressure beneath them, resulting in uplift pressures that may dislodge the modules from their mounting systems.

How does weather affect solar panels?

Severe weather phenomena such as hurricanes can lead to prolonged performance decline of solar panels and their mounting methods. Such incidents may inflict physical harm, leading to diminished efficiency and reduced system longevity.

Does wind pressure affect solar panels?

Wind pressure can put substantial loads on the front and back of modules and lead to micro-cracking of the solar cells and even fracture of the module glass. For modules placed in service at a site where the FEMA NRI tool shows relatively high risk of a strong wind event, specify modules with front and back pressure ratings.

Can a solar PV system be made more resilient to severe weather events?

On-site solar photovoltaic (PV) systems can be made more resilient to severe weather events by leveraging lessons learned from field examinations of weather-damaged PV systems and from engineering guidance resources. Total array loss from Hurricane Maria. Photo from Gerald Robinson, Lawrence Berkeley National Laboratory. August 2020 Derecho event.

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