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ContainerPower Energy Solutions

Distributed solar inverter

Overview

What is a distributed solar PV system?

Distributed architectures that use multiple three-phase string inverters throughout an array are the typical architecture in Europe, but are becoming increasingly common in the high-growth U.S. commercial market for distributed solar PV generation.

What is a centralized inverter design?

In reference to three-phase inverter design, a centralized architecture implies that a single inverter is used for the photovoltaic (PV) system installation or that a single inverter is used for each sub array of panels at large sites comprised of multiple arrays.

Why is a string inverter a good choice for a distributed architecture?

O&M: With distributed architectures, maintenance expense is greatly reduced because string inverters, particularly when they are convection cooled, do not require the preventive maintenance typical for central inverters, such as inspection of the cooling system, thermographic imaging, and replacement of air filters.

What is the difference between a distributed and a central PV system?

In general, a distributed architecture using string inverters yields a slight cost advantage in smaller arrays, while central architectures offer the lower cost per watt for larger PV installations. While every project is different, system modeling of first costs and energy production indicates a crossover point at approximately 350 kW-AC.

Why are centralized inverters so popular?

Centralized architectures are most common for larger commercial and utility-scale projects because of first-cost efficiencies and increasing requirements for utility interactive controls more widely available in central inverters.

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