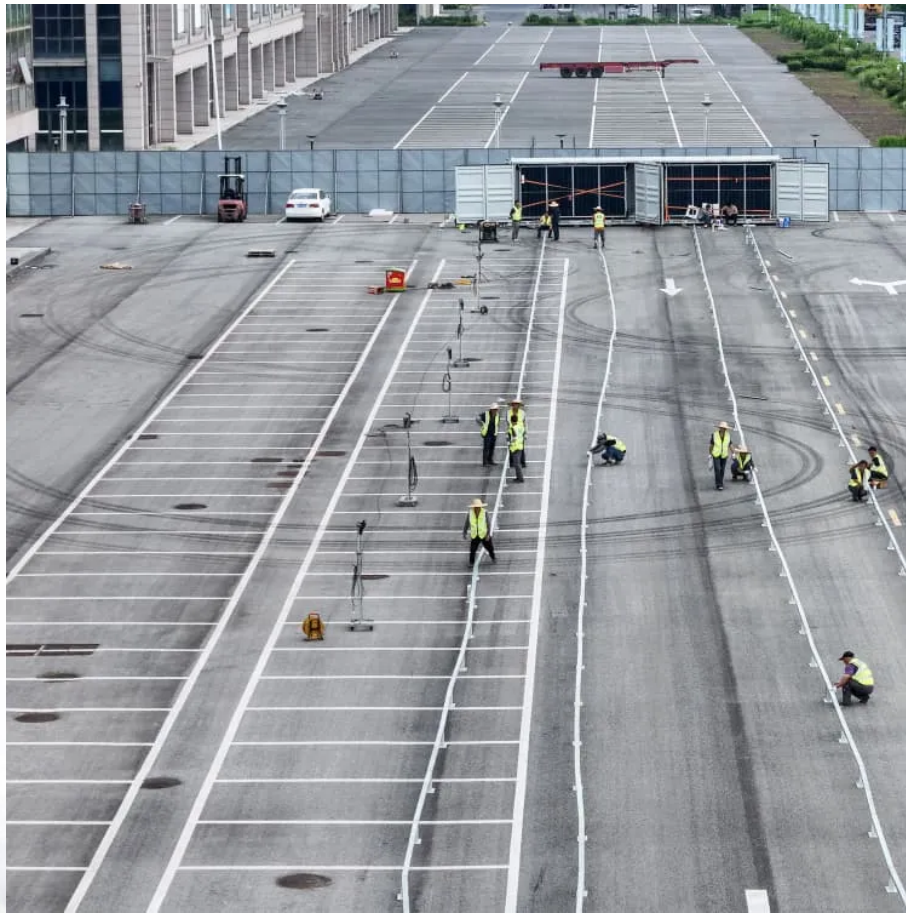


Off-grid solar-powered container DC technology parameters for ports





Overview

What is a solar grid connection capacity?

- Grid connection capacity = 100kVA. The figures below show the battery behaviour in summer and winter, to observe the impact of seasonal PV solar variation. Performance of a system with 120kWp of PV solar capacity in Summer, showing the small amount of grid energy needed to supplement the solar power.

How can ports reduce the dependence on grid-supplied electricity?

To minimize the dependence on grid-supplied electricity, ports are also investing in renewable generation notably PV solar on warehouse roofing and parking areas. Energy storage is also needed to optimize utilization of in-port generation and avoid curtailment when generation exceeds the available demand.

What are the parameters of a solar system?

The system parameters are: • Recharging load = 125kWh per recharge. (Recharging power can range between 65kW over 2 hours to 250kW over half an hour); • Grid connection capacity = 100kVA. The figures below show the battery behaviour in summer and winter, to observe the impact of seasonal PV solar variation.

Why is energy storage a critical port function?

Ensuring availability of these electrical resources to meet loads which are intermittent and uncertain is becoming a critical port function. It requires investment in multi-vector energy supply chains, energy storage in ports and their associated energy management systems.



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