
Cost Analysis of a 10kW Smart Photovoltaic Energy Storage Container

What is the cost-efficient size of a battery energy storage system?

Hence, the cost-efficient size of the battery energy storage system increases as the battery market prices drop equal to 2 kWh for the scenario in which the battery system's market price is equal to 200 EUR/kWh and reaches over 8 kWh when the market prices ideally drop to around 100 EUR/kWh.

What is the self-consumption rate of PV-generated electricity?

The self-consumption rate of PV-generated electricity is calculated as equal to 39 percent, indicating that the electricity produced by the PV system is not used in the building energy system directly and should be imported to the grid.

How efficient is a residential PV system in 2024?

The representative residential PV system (RPV) for 2024 has a rating of 8 kW dc (the sum of the system's module ratings). Each module has an area (with frame) of 1.9 m² and a rated power of 400 watts, corresponding to an efficiency of 21.1%.

How much electricity does a solar PV system produce?

The module rails and fasteners are imported from China and subject to 25% tariff. The DC conductors are connected to 220 three-phase string inverters, each rated at 10 kW ac, giving the PV system a rated AC power output of 2.2 MW ac, which corresponds to an inverter loading ratio of 1.37.

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