

Solar Panel Size Calculator

Estimates preliminary PV array wattage and panel count from daily energy, peak sun hours, system losses, and panel wattage.

Generated October 10, 2026

<https://www.elecatrix.com/solar-backup-power/solar-panel-size-calculator/>

Inputs

Input	Value	Unit
Daily energy use	10	kWh/day
Peak sun hours	5	h/day
System loss	20	%
Panel wattage	400	W

Results

Result	Value	Unit
Required PV wattage	2500	W
Panel count	7	panels
Estimated daily production	11.2	kWh/day
Applied production factor	0.8	

Calculation details

Detail	Value	Unit
Calculation basis	Daily energy is divided by peak sun hours and the retained production factor after the entered system loss.	
Solar boundary	No weather, shading, orientation, temperature, inverter, string-voltage, utility, structural, financial, listing, or code-compliance result is made.	

Formulas

Retained production factor = $1 - (\text{System loss (\%)} / 100)$

Required PV wattage = $\frac{\text{Daily energy (kWh/day)} \times 1,000}{\text{Peak sun hours} \times \text{Retained production factor}}$

Panel count = $\lceil \text{Required PV wattage} / \text{Panel wattage} \rceil$

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Estimated daily production = $\frac{\text{Panel count} \times \text{Panel wattage} \times \text{Peak sun hours} \times \text{Retained production factor}}{1,000}$

Warnings and limitations

This solar-panel estimate uses planning assumptions for daily energy, sun hours, and losses. It does not model weather, shading, orientation, temperature, inverter limits, string voltage, utility interconnection, structural loading, code compliance, or financial performance.