

Backup Load Priority Calculator

Review a backup-load priority schedule by comparing critical and essential running loads with reserved capacity and the remaining support available for optional loads.

Generated October 10, 2026

<https://www.elecatrix.com/solar-backup-power/backup-load-priority-calculator/>

Inputs		
Input	Value	Unit
Critical load	8	kW
Essential load	12	kW
Optional load	10	kW
Backup capacity	24	kW
Reserve	10	%
Results		
Result	Value	Unit
Priority load	20	kW
Requested backup load	30	kW
Reserved capacity	2.4	kW
Available backup capacity	21.6	kW
Priority margin	1.6	kW
Optional load supported	1.6	kW
Calculation details		
Detail	Value	Unit
Calculation basis	Priority load equals critical plus essential load. Available backup capacity subtracts the entered reserve from entered capacity, then optional support is limited by the remaining priority margin.	

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Review boundary

Entered-priority arithmetic only; no automatic load-shed logic, runtime, equipment sizing, transfer-switch selection, NEC, utility, AHJ, listing, or approval result is made by this calculator.

Formulas

$$P_{\text{priority}} = P_{\text{critical}} + P_{\text{essential}}$$

$$P_{\text{reserved}} = P_{\text{backup}} \times \text{fracR_}\%100$$

$$P_{\text{available}} = P_{\text{backup}} - P_{\text{reserved}}$$

$$P_{\text{optional, supported}} = \min(P_{\text{optional}}, \max(P_{\text{available}} - P_{\text{priority}}, 0))$$

Warnings and limitations

This is an entered-priority comparison only. It does not size a generator, inverter, battery, or transfer switch and does not create automatic load-shed logic.