

SOLAR + BATTERY GUIDE

How long can batteries run your air conditioners?

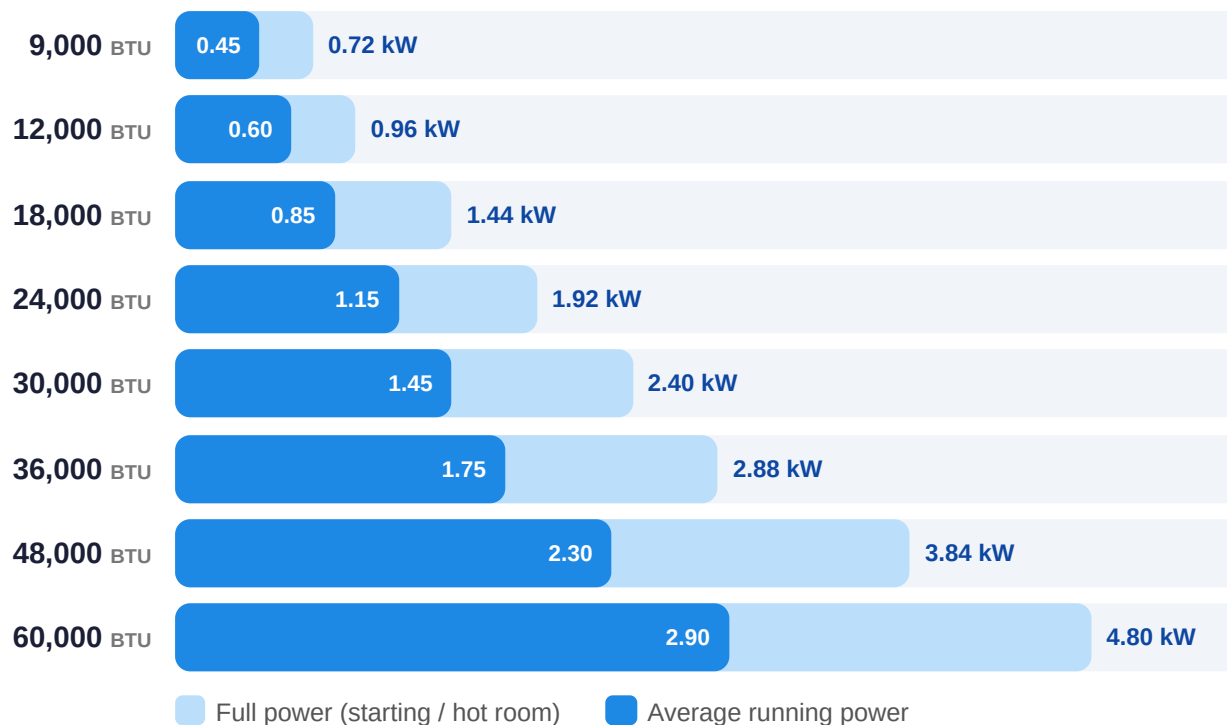
A simple guide for 6 air cons on 4×16 kWh LiFePO4 batteries

 6 air cons

 4×16 kWh

 hours of cooling

1 How much power does an air con use?



Rule of thumb
12,000 BTU ≈ 1 kW

$$\text{Power (kW)} = \text{BTU} \div (\text{EER} \times 1,000)$$

Inverter air cons slow down once the room is cool, so on average they use only **about 60%** of full power.

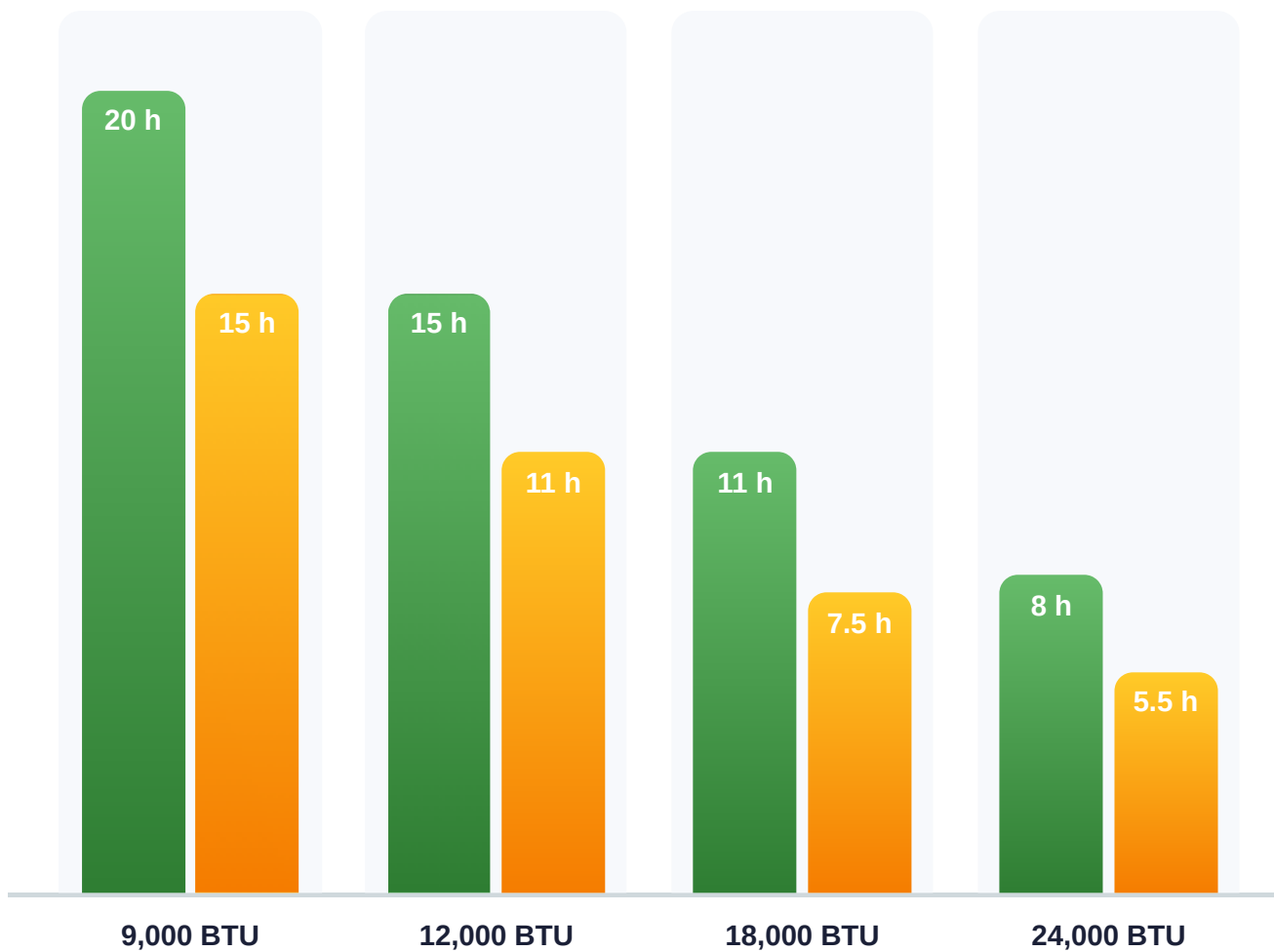
Figures for inverter air cons (EER ≈ 12.5). Non-inverter units use about 15% more.

2 How much energy do 4 batteries hold?



💡 **55 kWh ≈ 55 units of electricity**, the same "units" shown on your PEA bill.

3 How many hours for 6 air cons?



$$\text{Hours} = 55 \text{ kWh} \div (6 \times \text{kW per air con})$$

■ Inverter air con
 ■ Non-inverter air con

6 × 12,000 BTU inverter

≈ 15 hours

enough for the whole night

4 Tips for the longest runtime



Set 25–26 °C

Every degree cooler adds roughly 6–8% more power use.



Choose inverter air cons

About 25–35% longer runtime than non-inverter units.



Start them one at a time

Air cons draw a surge when starting. Staggering protects the inverter.



Size the inverter too

$6 \times 12,000 \text{ BTU} \approx 6 \text{ kW} \rightarrow$ one 10 kW inverter is OK. 18,000–24,000 BTU needs two inverters.

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