Powering a 20ft 40ft expandable container house with solar energy ?

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Now more and more people like to use containers for office, coffee booth, small working room. Easy to build, easy to move, even good for environment. But one problem: **no electricity**.

So what's the smart way to solve it? Something quiet, green, and not expensive?

Yes — **Solar panels + batteries**.

Let's talk real: how to power a **20ft 40ft expandable container house with solar energy ?**

1. How Much Power We Need Every Day?

Container house is not big, so power usage is not that crazy.

Let's say daily usage like this:

- LED lights x4 (10W each), 6 hours: → 240Wh
- 2 laptops (50W each), 8 hours: → 800Wh
- Wi-Fi router all day: → 240Wh
- Fan for 6 hours: → 240Wh
- Small fridge (on/off, 24hrs): → 600Wh
- 2 phones charging: → 60Wh

Total around 2200Wh, or 2.2kWh per day.

Not much, right? But when it rains for days, and you got no power — that's a real headache.

2. How Big Solar System We Need?

If we want to cover 2.2kWh daily, how many solar panels is enough?

Usually, we count **4 hours of good sunlight per day** (in most China areas or Asia places).

So:

2.2 ÷ 4 = 550W solar power needed.

But this is only theory. In real life, there's system loss, bad weather, dirty panels, etc.

So better to go safe:

3 x 300W panels = 900W. More stable and peace of mind.

Where to install panels?

On the container roof is fine. Tilt them to south side, get max sun.

3. How to Choose Battery?

Sun only shines in day. At night, you need battery backup. So, 2.2kWh per day — how much battery you

need?

We use LiFePO4 lithium battery, can use like 90% of power.

2.2 ÷ 0.9 ≈ 2.5kWh battery needed.

Better to use: **1x 48V 100Ah battery = 4.8kWh**, which is more than enough.

Can use 2 days if needed.

On a budget?

Start with **48V 50Ah (2.4kWh)** — enough for light use, but don't over-discharge all the time.

4. What Other Parts You Need?

Besides panels and battery, don't forget:

- **Inverter**: Turn DC into 220V AC. Use pure sine wave, at least 2000W.
- **MPPT Controller**: Smart charger, helps solar get more power.
- **Cables, brackets, junction box** — small stuff but must-have.

Whole system install is not so hard. 1–2 days work and done.

5. How's the Result?

- ✔ Solar makes power in the day, charge and use at same time
- ✔ At night, auto switch to battery
- ✔ Silent, clean, no fuel smell
- ✔ Almost 24/7 running without problem

You got a jobsite, rural area, camping park, or mobile kiosk? This kind of "**off-grid + movable" solar power system** is super useful.

6. Some Extra Tips

- Low budget? Start small, add more later
- Lots of rain? Add 1 day extra battery backup
- Worry blackout? Bring a small diesel generator as backup
- Want clean look? Pack solar + battery into side box or energy cabinet

Item	Suggested Setup
Solar Panels	3 x 300W = 900W
Battery	48V 100Ah = 4.8kWh
Inverter	2000W pure sine wave
Controller	60A MPPT

Item	Suggested Setup
Power Per Day	3.5 to 4 kWh

Quick Wrap-up

Solar + battery can totally handle a **20ft 40ft expandable container house with solar energy .**

Clean, stable, and can move anywhere you go.

Still thinking about fuel generator? Why not try solar — it’s quiet and smart.

If you’re building a mobile office, smart jobsite, or glamping house — talk to us about **solar energy cabinet**.

All-in-one, plug and play, easy to use.

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