SOL COUNTRY

The Balcony Solar DIY Guidebook

Suitability · Kits · Installation · Mounting · Moving day

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This guide covers plug-in (balcony) solar for renters and apartment dwellers. It's national — references to specific state tiers (like Colorado's 1,920W ceiling) are called out where they matter. Always check your state's exact rules at solcountry.com/tracker before buying.

CHAPTER ONE

01. Is balcony solar right for your space?

Before you spend money on a kit, answer these honestly. Balcony solar works great in the right conditions and barely produces anything in the wrong ones — better to know now.

Suitability worksheet

Question	Your answer (circle one)
1. Which direction does your balcony/patio face?	South / SE or SW / E or W / North
2. How many hours of direct sun on a clear day?	6+ / 3–5 / Less than 3
3. Any obstructions (trees, buildings, overhangs)?	None / Some partial shade / Heavily shaded

How to read your answers

EXCELLENT FIT — South + 6+ hours + no obstructions

Your space gets strong, consistent sun. A balcony solar panel should perform close to its rated capacity. Move on to Chapter 2 to pick your kit.

WORKABLE, BUT EXPECT LOWER OUTPUT — anything in between

You'll still generate some power, but likely 30–50% below a kit's rated capacity. Consider this in your savings expectations, or look at whether a different spot (railing vs wall) gets better sun.

PROBABLY NOT THE RIGHT FIT — North-facing, <3 hours, or heavy shade

Heavy shade or a north-facing orientation means a panel here likely won't generate meaningful savings. Community solar — which needs no installation or direct sun at your specific address — might be a better starting point. See solcountry.com/marketplace/community-solar.

CHAPTER TWO

02. Which size kit do you need?

Most states cap the no-approval tier at 395–400W. Some states allow larger systems with a licensed electrician. Check your state's specific limit before buying.

395W tier — No approval needed

The default plug-and-play tier in most states. No utility approval, no licensed electrician, no permits. Most starter kits land here.

800W tier — Check your state

Some states (Maryland, Maine, Virginia, Utah) allow up to 1,200W. Others cap at 395–400W. Always check your state's limit before buying.

1,200–1,920W tier — Licensed electrician required

Colorado allows up to 1,920W with a licensed electrician and a dedicated circuit. Not a DIY install at this size, and a permit is usually required.

Check your state's exact limit at solcountry.com/tracker.

CHAPTER THREE

03. What's in the box, and what you'll need

Most 395W plug-in solar kits include everything except basic hand tools.

Included in most kits

- Solar panel
- Microinverter
- Mounting brackets
- Outlet plug cable (10–25ft)
- Mounting hardware (screws, clamps)

You'll also need

- Phillips/flathead screwdriver
- Adjustable wrench
- Tape measure
- A drill (for some mounting types)
- A second person (recommended for panels over 30 lbs)

CHAPTER FOUR

04. Seven steps, start to finish

STEP 01 ~10 min

Choose your spot

South-facing gets the most sun, but southeast/southwest work well too. Avoid spots shaded by overhangs, trees, or neighboring buildings for more than 2–3 hours a day.

STEP 02 ~5 min

Check your outlet

You need a standard 120V outlet within reach of the included cable (usually 10–25ft). A GFCI outlet (the kind with a reset button, common on balconies) is ideal and often required.

STEP 03 ~20 min

Attach the mounting brackets

Most kits include brackets for railing mounts, wall mounts, or ground/rack mounts. Follow the kit's specific bracket instructions — this varies most by manufacturer.

STEP 04 ~20 min

Secure the panel

Attach the panel to the brackets. For railing mounts, this usually means tightening clamps around the railing. For wall mounts, you'll need to drill anchor points (check with your landlord first).

STEP 05 ~10 min

Connect the microinverter

The microinverter usually attaches directly to the back of the panel or nearby. Connect the panel's output cables to the microinverter input — most kits use weatherproof, tool-less connectors.

STEP 06 ~2 min

Plug into your outlet

Connect the microinverter's output cable to your outlet. This is the only electrical connection you'll make — there's no wiring into your home's electrical panel for the no-approval tier.

STEP 07 ~5 min

Confirm it's working

Most kits include an app or simple LED indicator showing power generation. Check it during daylight hours — you should see generation within minutes of connecting.

CHAPTER FIVE

05. Three ways to mount your panel

Railing mount

Most common for apartment balconies. Clamps directly onto a standard railing, no drilling required. Best for most renters.

Wall mount

For patios or exterior walls without a railing. Usually requires drilling anchor points — check with your landlord first even in states with solar rights laws, since drilling falls under 'reasonable placement guidelines.'

Ground / rack mount

For ground-floor patios or yards. Uses a freestanding frame, no attachment to the building at all — the easiest to get landlord approval for since nothing touches the structure.

CHAPTER SIX

06. Above the no-approval limit? Here's what changes.

States like Colorado allow systems up to 1,920W — but anything above the base no-approval tier (typically 395–400W) requires a licensed electrician and a dedicated circuit. This isn't a DIY project at that size.

- A licensed electrician installs a dedicated circuit
- Requires an electrical permit in most jurisdictions
- Installation typically takes half a day to a full day
- Cost increases significantly — budget for electrician labor on top of the kit price

Find a verified installer at solcountry.com/installers.

CHAPTER SEVEN

07. Moving out? Here's how to take it with you.

One of balcony solar's biggest advantages over rooftop solar: it's yours. Here's how to remove it cleanly and set it back up at your next place.

01. Disconnect safely

Unplug the microinverter from the outlet first, then disconnect the panel-to-microinverter cable. No special procedure needed — it's designed to be unplugged like any other appliance.

02. Remove the mounting hardware

For railing mounts, loosen and remove the clamps. For wall mounts, remove screws and consider whether to patch the holes (check your lease's move-out terms on this — it's the same as any other wall anchor you've installed).

03. Pack it carefully

Most panels are somewhat fragile to flex/impact. Wrap in a moving blanket or the original packaging if you kept it, and transport flat rather than leaning at an angle if possible.

04. Re-install at your new place

Start back at Chapter 1 — re-check suitability at your new spot, since orientation and sun exposure will likely be different.

> **STATE LIMIT NOTE**
>
> If your new state has a different wattage limit than your previous one, check solcountry.com/tracker before reinstalling above the no-approval threshold.

CHAPTER EIGHT

08. If something's not working

No power showing on the app/LED

Check the outlet is live (test with another device), confirm all cable connections are fully seated, and confirm you're testing during daylight hours.

Panel producing less than expected

Check for partial shading at different times of day, confirm the panel angle/orientation, and clean any dust or debris off the panel surface.

GFCI outlet keeps tripping

This can happen with some microinverters during startup. Check your kit's manual — some recommend a specific outlet type or a brief reset procedure.

Not sure if my installation is compliant

Take photos of your setup and keep your kit's UL 3700 certification documentation. This is useful if your landlord or HOA ever asks for verification.

Keep this guide handy

The latest version of this guidebook lives at solcountry.com/guide/balcony-solar. When you're ready to shop kits, head to solcountry.com/marketplace/balcony-solar.