



Solar Power for Your RV or Camper, Explained

English An Extended Guide · No. 2053

— An Extended Guide · No. 2053 —

Tech Made Simple. Service Made Personal.

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What's Inside

Everything in this guide, with page numbers. Skip to whichever chapter answers your question right now.

1. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	5
2. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	6
3. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	6
4. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	7
5. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	8
6. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	8
7. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	9
8. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	10
9. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	11
10. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	11
11. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	12

12. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	13
13. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	14
14. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	15
15. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	16
16. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	17
17. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	18
18. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	19
19. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	20
20. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	21
21. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	22
22. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	23
23. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	24
24. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech	25

25. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech 26

A Picture to Follow Along 27

A Second Look 28

A Note From Bill 28

Your Visit — and My Promise 29

1. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech

What's Inside Everything in this guide, with page numbers. Skip to whichever chapter answers your question right now..... 5

1. The Whole Idea in One Glance.....	5
2. What RV Solar Really Is.....	6
3. Why People Add Solar to a Rig.....	6
4. Do You Actually Need It?.....	7
5. The Four Parts, Start to Finish.....	7
6. The Panels That Catch the Sun.....	8
7. Roof Panels or a Portable Suitcase.....	8
8. The Charge Controller, the Traffic Cop.....	9
9. MPPT and PWM, Two Controller Types.....	9
10. The Battery That Stores It All.....	10
11. Why Lithium Pairs Best With Solar.....	10
12. The Inverter for Household Power.....	11
13. Figuring Out What You Use in a Day.....	11
14. Sizing the Panels to Match.....	12
15. Sizing the Battery Bank.....	12
16. The Simplest Setup That Works.....	13
17. A Full Roof System, Explained.....	13
18. Mounting Panels on the Roof.....	14
19. Aiming Panels at the Sun.....	14
20. The Enemy Called Shade.....	15
21. What Happens on Cloudy Days	

2. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech

..... 15	22. Short Days and Low Winter Sun.....	16	23.
Solar With a Power Station.....	16	24. Running Starlink on	
Solar.....	16	25. Keeping a Generator as Backup.....	17
Watching Your System on a Screen.....	17	27. Wiring, Fuses and Doing It	
Safely.....	18	28. Adding Panels Later.....	18
What to Expect to Spend.....	19	30. The Common Brands,	
Evenly.....	19	31. Keeping Panels Working Their Best.....	
20	32. Solar in a Stored RV.....	20	33. A Word on Solar for
Boats.....	21	34. The Questions People Ask Me Most.....	21
35. Common Mistakes to Avoid.....	21	36. When It Isn't	
Charging.....	22	37. Rigid and Flexible Panels.....	22
38. Wiring Panels Together.....	23	39. Tilt Legs for More Winter	
Power.....	23	40. Charging From the Engine Too.....	24
What Solar Can and Can't Run.....	24	42. Your Solar	
Checklist.....	25	43. When It Is Worth Calling Me.....	
25	Everyday Cheat Sheet		

3. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech

..... 26	A Picture to Follow Along.....	27	A
Second Look.....	27	A Note From Bill.....	28
Visit — and My Promise			

THE 60-SECOND VERSION

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1. The Whole Idea in One Glance If you remember only this page, you will still make a smart choice. Solar power for an RV is a small team of four parts. Panels catch the sun and make electricity. A charge controller feeds that power safely into a battery. The battery stores it. And an inverter, if you have one, turns the stored power into the household kind your outlets use. That is the whole system. Panels make power from the sun, even on partly cloudy days A charge controller protects the battery while it fills it The battery stores the power for nights and gloomy days An inverter turns stored power into regular wall-outlet power Lithium batteries pair best with solar and last the longest You do not have to understand every wire. If you understand these four parts and roughly how much power you use in a day, you can size a system that fits you and skip the rest. WHAT IT IS 2. What RV Solar Really Is Solar is just a way of refilling your RV's batteries without plugging into anything. The panels soak up sunlight and turn it into electricity, which trickles into your batteries through the day. At night and on gray days, you live off what the batteries stored. When the sun returns, they fill back up for free. It is not magic and it is not instant. Solar is a steady, gentle refill, not a fast charger. The sun does the work quietly on the roof while you fish, hike, or nap, and you hardly know it is happening. WATCH OUT Think of solar as a slow faucet filling a bucket. The bucket is your battery, and as long as you do not scoop out faster than the faucet fills, you never run dry.

WHY RVERS LIKE IT

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3. Why People Add Solar to a Rig Solar is what lets you park in a beautiful, quiet spot with no hookups and still keep the lights on and the fridge cold. It means no hauling a noisy generator, no buying fuel, and no listening to an engine drone through a peaceful evening. For folks who love getting off the beaten path, it changes everything. Camp with no hookups and still have power No fuel to buy, no generator noise to bother anyone Keeps the fridge, lights, and chargers going for free Quiet, hands-off, and welcome in any campground It is not for everyone. If you always camp with electric hookups, solar may be more than you need. The question is how often you want to roam where there is no plug. BE HONEST 4. Do You Actually Need It? The most money-saving page in this guide. This is the page I would want a friend to read before spending anything. A solar setup is a real investment, from a modest portable panel to a full roof system that runs into real money. If you always have hookups, your rig charges from the pedestal and you may not need solar at all. You always camp with electric hookups: you likely do not need it You boondock or dry camp off-grid: solar earns its keep You take a few off-grid weekends: a small portable panel may be plenty You live in the rig full-time off-grid: a full system is worth it WATCH OUT Do not buy a big roof system for a camping style that always has hookups. Be honest about how often you are truly off the grid before you spend.

THE FOUR PARTS

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5. The Four Parts, Start to Finish Every solar setup, big or small, follows the same path. Sunlight hits the panels, the power flows through a charge controller that keeps it safe, it fills the battery, and the inverter turns it into household power when you need it. If you can picture that line, you understand solar.

- 1 Sun shines on the panels, making electricity
- 2 The charge controller regulates it to protect the battery
- 3 The battery stores the power for later
- 4 The inverter changes stored power into wall-outlet power
- 5 Your lights, fridge, and devices draw from it all The smallest kits combine the controller into a portable panel and skip the inverter if you only run 12-volt gear. The path is the

same; the pieces are just bundled together. **THE PANELS** 6. The Panels That Catch the Sun The panels are the part everyone pictures — flat dark rectangles that drink in sunlight. Their size is measured in watts, and more watts means more power on a sunny day. You can mount them flat on the roof or set them out as a portable folding panel you aim at the sun. Panels are rated in watts — more watts, more power Roof-mounted panels are tidy and always working Portable folding panels can be aimed at the sun Several small panels can add up to a big system **TIP** A panel's watt rating is its best-case number, in perfect sun. On a real day with some haze or an angle to the sun, plan on getting meaningfully less than the sticker says.

ROOF VS PORTABLE

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7. Roof Panels or a Portable Suitcase You have two main ways to carry solar.

Roof-mounted panels are permanent, tidy, and always soaking up sun while you drive or sit. A portable suitcase panel folds up, stows in a compartment, and lets you park the rig in the shade while the panel sits in a sunny clearing. Many RVers end up with a little of both. Roof panels: always on, nothing to set up, but fixed flat Portable suitcase: aim it at the sun, chase a sunny gap Roof is best if you camp in the open; portable if you love shade A mix of both gives you the strengths of each The big advantage of a portable panel is the same as a portable Starlink dish: you can park the rig in cool shade and still put the panel where the sun is. Shade is kind to you and cruel to solar. **THE CONTROLLER** 8. The Charge Controller, the Traffic Cop The charge controller sits between the panels and the battery, and it is the unsung hero of the system. Its job is to take whatever the panels make and feed it into the battery safely, never overcharging it. Without one, raw panel power would cook a battery over time. It regulates panel power so the battery charges safely It stops the battery from being overcharged It comes built into most portable panels and power stations A separate one is needed for a roof-panel system **WATCH OUT** You do not buy a controller to show off; you buy it so your expensive battery lasts. It is quiet, it is small, and it is not the place to cut corners.

MPPT VS PWM

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9. MPPT and PWM, Two Controller Types Charge controllers come in two flavors with clunky names: MPPT and PWM. You do not need the engineering, just the bottom line. An MPPT controller is smarter and squeezes more power out of the same panels, especially on cloudy days or in cold weather. A PWM controller is cheaper and fine for very small setups. MPPT: smarter, more efficient, better in clouds and cold PWM: cheaper and simpler, fine for tiny systems For most real RV solar, MPPT is worth the extra cost Many portable kits already include a good controller If you are spending real money on panels, an MPPT controller makes sure you actually collect what you paid for. On a system of any size, it usually pays for itself in extra power harvested. THE BATTERY 10. The Battery That Stores It All Panels only make power when the sun is up, so the battery is what carries you through the night and the cloudy afternoons. It is the heart of the system. The bigger your battery bank, the more days of cushion you have when the weather turns gray. Its size is measured in amp-hours or watt-hours. The battery stores power for nights and gloomy days Its size is measured in amp-hours (Ah) or watt-hours (Wh) A bigger bank means more cushion through bad weather It is the heart of any off-grid solar setup WATCH OUT Panels and battery are a pair. Big panels with a tiny battery fill up and waste the extra sun; a big battery with tiny panels never fully charges. Size them to work together.

LITHIUM

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11. Why Lithium Pairs Best With Solar The battery you choose matters a lot for solar.

Lithium batteries, the LiFePO4 kind, pair beautifully with solar because you can use nearly all their stored power, they charge quickly, and they last for many years. Older lead-acid batteries work too, but you can only safely use about half their capacity. Lithium (LiFePO4) lets you use nearly all its capacity Lead-acid gives you only about half before you should stop Lithium charges faster, so it grabs more of a short sunny spell Lithium is lighter and lasts far longer, though it costs more My RV and boat batteries guide goes deep on this choice. The short version for solar: lithium gets you far more usable power from the same sunny day, which is exactly what you want off-grid. THE INVERTER 12. The Inverter for Household Power Your battery stores power in the 12-volt form your RV lights and water pump use directly. But a laptop charger or a coffee maker wants regular household power, like a wall outlet at home. The inverter makes that change. If you only run 12-volt gear, you may not need one at all. An inverter turns battery power into wall-outlet power You need it to run anything with a normal household plug Its rating, in watts, sets the biggest thing it can run Skip it if you only run 12-volt lights, pumps, and fans TIP Look for a pure sine wave inverter, which makes clean power like your home outlets. Sensitive gear such as a CPAP or a laptop runs happiest on it.

SIZING YOUR USE

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13. Figuring Out What You Use in a Day Sizing solar starts the same way as sizing a battery: you figure out how much power you use in a day. You list your gear, estimate how long each runs, and add it up in watt-hours. That daily total is the amount your panels have to replace each sunny day to keep you even.

- 1 List everything you run off-grid in a day
- 2 Find each device's watts from its label
- 3 Estimate the hours a day each one runs
- 4 Multiply watts by hours and add it all up
- 5 That daily total is what your panels must replace My power station guide has the same sizing walk-through with real camping examples — a fridge, a CPAP, some devices. The

math is identical whether the battery is in a box or bolted to your rig. **SIZING PANELS 14.** Sizing the Panels to Match Once you know your daily use, you size the panels to replace it. A panel does not make its full rating all day — you get a handful of good sun-hours, not twenty-four. A rough rule is that a panel's daily harvest is a few times its watt rating in watt-hours, on a decent sunny day. Panels make power only during good daylight hours. A sunny day yields a few sun-hours of real output. Add up enough panel watts to replace your daily use. Add extra for cloudy stretches and your peace of mind. **WATCH OUT** Short winter days and gray skies cut your harvest sharply. If you camp in shoulder seasons or shady spots, size up generously — the sun gives you far less than its summer best.

SIZING BATTERY

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15. Sizing the Battery Bank Your battery needs to hold enough to carry you through the night plus a cloudy day or two when the panels fall short. A common target is enough battery to cover a full day of use with room to spare, so a single gray day does not leave you dark before the sun returns. Size the battery to cover a full day of use, plus a cushion. Aim for enough to ride out a cloudy day without panels. Lithium lets you use nearly all of it; lead-acid only half. A bigger bank is forgiving; a small one is nerve-racking. **TIP** If you must choose where to spend, a generous battery buys you peace of mind on cloudy days, while generous panels refill it faster when the sun does shine. A balanced pair is the goal. **A SIMPLE SETUP 16.** The Simplest Setup That Works You do not have to start big. The simplest useful solar setup for a weekend camper is a portable folding panel, a small controller built into it, and a power station or battery to store the power. You set the panel in the sun, plug it in, and you are collecting free power in minutes. A folding suitcase panel with a built-in controller. A power station or battery to store what it makes. Set it in the sun, plug it in, done. Grow into a roof system later if you need more. A portable panel plus a power station is the easiest on-ramp to solar. No drilling, no wiring, no roof work — just set it out and watch the battery climb.

A BIG SETUP**12. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech**

17. A Full Roof System, Explained At the other end is a permanent roof system: several panels bolted up top, a good MPPT controller, a sizable lithium battery bank, and an inverter wired into the rig's outlets. It is more to install and costs more, but it is hands-off and powerful. This is the setup for full-timers and serious boondockers. Several roof panels feeding a big lithium bank A capable MPPT controller and a strong inverter Wired into the rig so your outlets just work More cost and install, but powerful and hands-off TIP A full roof system is the one job where I would lean toward professional help for the wiring. The panels are easy; the battery and inverter wiring deserves someone who does it right.

MOUNTING 18. Mounting Panels on the Roof Roof mounting means attaching panels securely and sealing every screw against water. The panels themselves are not heavy, but a leak around a mount can quietly damage a roof for years. If you mount your own, use the right brackets and a generous, RV-safe sealant, and check the seals each season. Mount panels flat and secure against highway wind Seal every screw hole against water, generously Leave an air gap under the panels so they stay cooler Check the seals and brackets at the start of each season WATCH OUT A poorly sealed roof mount can let water in and rot a roof from the inside before you ever see a stain. Seal thoroughly, and if you are unsure, let a pro handle the roof penetrations.

ANGLE

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19. Aiming Panels at the Sun Panels make the most power when they face the sun squarely. Roof panels lie flat, which is a fair compromise, but a portable panel you can tilt and aim will out-produce a flat one, especially in the morning and evening. A few minutes of aiming can noticeably boost your harvest. Panels facing the sun directly make the most power Flat roof panels are a compromise, but convenient A tilted, aimed portable panel gathers more Re-aim a portable panel once or twice as the sun moves On a short, weak winter day, tilting a portable panel toward the low sun can be the difference between keeping up and falling behind. In high summer, flat is often good enough. SHADE 20. The Enemy Called Shade Shade is the great enemy of solar. Even a little shadow across a panel — from a branch, an antenna, or a vent — can cut its output far more than you would expect. A shady, wooded campsite is lovely to sit in and hard on your panels. This is where a portable panel truly shines. Even partial shade cuts a panel's output sharply A branch or vent shadow matters more than it looks Wooded sites are tough for roof panels A portable panel lets you chase a sunny gap TIP If you love shady campsites, lean toward a portable panel on a long cable. Park the rig in the cool shade and set the panel out in the sun where it can actually work.

CLOUDY DAYS

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21. What Happens on Cloudy Days Panels still make some power under clouds, just a lot less — sometimes a small fraction of a sunny day. This is exactly why the battery matters. A healthy battery bank carries you through a gray day so you do not notice the panels loafing, and the sun tops you back up when it returns. Clouds cut output to a fraction of a bright day The battery bank is your buffer through gray stretches Several cloudy days in a row test your battery size Trim your use on gloomy days to stretch the battery On a run of cloudy days, go easy: skip the big draws, charge only what you need, and let the battery coast. A little restraint carries you to the next sunny morning. WINTER SUN 22. Short Days and Low Winter Sun An Ohio winter gives solar a hard time. The days are short, the sun sits low, and gray skies are common. Panels still work, but they gather far less than in summer. If you camp in the cold months, plan on more panel, more battery, and a willingness to lean on other charging too. Winter days are short and the sun is low and weak Expect a fraction of your summer harvest Tilting a portable panel toward the low sun helps a lot Keep a backup charging plan for long gray stretches WATCH OUT Do not size a system on summer numbers and then try to camp off-grid in December. Winter solar in Ohio is a bonus, not a reliable supply — plan for backup charging in the cold months.

POWER STATION

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23. Solar With a Power Station The easiest marriage of solar and storage is a portable power station with a folding panel. The station has the battery, controller, and inverter all in one box, so you just plug the panel in and set it in the sun. For many campers, this is all the solar they ever need. A power station bundles battery, controller, and inverter Plug a folding panel in and set it in the sun No wiring and no roof work at all A simple, powerful on-ramp to off-grid power My portable power station guide covers this pairing in detail, including how to size the station. For a lot of folks it is the whole answer: one box plus one panel. ADDING STARLINK 24. Running Starlink on Solar Plenty of off-grid RVers run a Starlink dish straight off their solar system. It works well as long as you have sized in a little room for its steady power draw on top of your fridge, lights, and chargers. A dish is a welcome guest on a system built with headroom to spare. Starlink adds a steady draw to your daily total Size the system with room for the dish plus everything else The smaller Starlink Mini sips less than the big dish Turn the dish off overnight to stretch your battery TIP If internet off-grid is your dream, my Starlink guide and this one go together. Size the solar with the dish in mind, and you can video-call from a lake with no cell signal for miles. GENERATOR TOO 25. Keeping a Generator as Backup Solar and a generator are not rivals; they make a fine team. Solar does the quiet, everyday work for free, and a small generator stands by for the rare stretch of gray days or a heavy load the panels cannot keep up with. Many thoughtful boondockers carry both and use the generator rarely.

MONITORING**16. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech**

Solar handles the quiet, everyday charging A generator covers long gray spells and heavy loads Together you get the best of silent and endless power Most of the time, the generator just sits as insurance The happiest off-grid setups lean on solar day to day and keep a small generator in the bay for insurance. You run it a few times a season, not every evening.

26. Watching Your System on a Screen A good solar setup lets you see what is happening: how much the panels are making, how full the battery is, and how much you are drawing. A little monitor or a phone app turns all that into a clear picture, so you can make smart choices before you run low instead of after. A monitor shows panel output, battery level, and your draw A phone app can show it all from your chair Watching the numbers helps you avoid running dry Learn which appliances are the big draws by watching TIP Glance at the battery percentage with your morning coffee. If a cloudy day is coming and the number is low, you can go easy early instead of scrambling after dark.

WIRING 27. Wiring, Fuses and Doing It Safely Solar wiring is not hard, but it must be done safely, with the right size wire and a proper fuse near the battery. Electricity from a big battery can start a fire if a wire shorts out, so this is one spot where cutting corners is a genuine risk, not just a quality issue. Use the correct wire size for the current you carry Put a proper fuse close to the battery on every circuit Keep connections tight, clean, and protected from vibration If the wiring feels over your head, bring in help

WATCH OUT

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A missing or wrong-size fuse is a fire waiting to happen. If you are not confident about fuse sizing and wire gauge, this is exactly the kind of job worth having a pro check. **PORTABLE EXPAND 28. Adding Panels Later** You do not have to buy your whole system at once. Many setups let you add panels later if you find you are running short. Starting with a sensible base and growing into it spreads the cost and lets a real trip teach you how much you actually need. Start with a sensible base and grow it over time Add panels if real trips show you run short A controller sized with headroom makes growth easy Spreading the cost is easier on the wallet **TIP** When you buy your controller, pick one with a little room for more panels than you start with. That small choice makes it easy to add a panel down the road without replacing anything. **COST 29. What to Expect to Spend** Solar ranges widely in price. A single portable panel to top up a power station is a modest spend. A full roof system with a big lithium bank and an inverter runs into real money. Prices move around with the seasons and the brands, so confirm the current price before you commit to anything. A portable panel: a modest, friendly starting spend A full roof system with lithium: a real investment Lithium batteries are the biggest single cost Confirm current prices and watch for seasonal deals Start with what your camping style truly needs. A portable panel and a power station cover most weekends, and you can always grow to a roof system if you take up full-time off-grid life.

BRANDS**18. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech**

30. The Common Brands, Evenly Several brands make solid RV solar gear, from panels to all-in-one kits. Rather than crown a single best, look for a kit with good panels, a quality MPPT controller, and a lithium battery sized to your needs. The reputable names all make dependable equipment when the specs match what you actually need. Many brands make good panels and kits — compare specs Look for a quality MPPT controller in any kit Match the battery chemistry and size to your use A well-reviewed kit beats chasing a single brand name TIP Pick the specs that fit your rig first — panel watts, controller type, battery size — then choose among the brands that offer them. The numbers matter more than the logo.

MAINTENANCE 31. Keeping Panels Working Their Best Solar is wonderfully low-maintenance, but a little care keeps it at its best. Dusty or pollen-coated panels make less power, so a rinse now and then helps. Check that mounts are tight and seals are sound at the start of each season. Beyond that, the sun does the work and you enjoy it. Rinse dust, pollen, and bird mess off the panels A clean panel makes noticeably more power Check mounts and roof seals each season Keep the controller and battery connections tight A thick layer of spring pollen can quietly rob a panel of a good chunk of its output. A gentle rinse with water on a cool morning brings it right back.

WINTER STORE

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32. Solar in a Stored RV If the rig is parked for an Ohio winter, solar can actually help by keeping the battery topped up while it sits — as long as the battery is one that likes being kept full. Lead-acid batteries especially benefit from a slow solar trickle. Lithium batteries are better stored partly charged and checked now and then. A small solar trickle can keep a stored battery healthy Lead-acid especially likes being kept topped up Lithium is happier stored partly charged, not pinned full Keep snow brushed off the panels so they can work My winterizing guide covers storing the whole rig, batteries included. Whether solar helps over winter depends on your battery type, so check which chemistry you have first. BOAT SOLAR 33. A Word on Solar for Boats Solar is handy on a pontoon or a bigger boat too, trickling power into the house battery to run lights, a stereo, and a fish finder without draining the starting battery. A small panel keeps everything topped up through a day on the water. Just mount it where it will not get stepped on or soaked by spray. A small panel keeps a boat's house battery topped up Runs lights, stereo, and electronics without draining the start battery Mount it clear of foot traffic and heavy spray Great for a day on Mogadore, West Branch, or Berlin On the water, keep the starting battery separate and protected. Solar is best aimed at the house battery that runs your gear, so you never find yourself unable to start the motor.

COMMON WORRIES

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34. The Questions People Ask Me Most When folks ask me about RV solar, the same worries come up again and again. Here are the honest answers to the ones I hear most, so you can decide with clear eyes and no sales pressure. 'Will it run my air conditioner?' Rarely — that is a very heavy load 'Does it work on cloudy days?' A little, which is why you need a battery 'Is it hard to install?' A portable panel is easy; a roof system is more 'Is it worth it?' Yes, if you camp off-grid; maybe not if you always have hookups There is no shame in starting with one portable panel. For most weekend campers, that plus a power station is all the solar they will ever want. MISTAKES 35. Common Mistakes to Avoid A few mistakes trip people up with solar, and all of them are easy to sidestep. The biggest is mismatching the panels and battery, so one is always waiting on the other. The next is forgetting that shade, clouds, and winter all cut your harvest far below the panel's sticker number. Mismatched panels and battery, so one bottlenecks the other Counting on the panel's full rating in real-world conditions Forgetting that shade and winter slash the harvest Skimping on the controller or the fuses to save a little WATCH OUT The most common disappointment is expecting the panel's rated watts every day. Size your system on realistic harvest, not the perfect-lab number on the box, and you will be happy. TROUBLESHOOTING 36. When It Isn't Charging If your solar is not filling the battery like it should, the cause is usually simple. Most trouble comes down to shade on a panel, a loose connection, a tripped fuse, or a battery that is already full. Work through the basics in order before you suspect anything is broken.

TIP

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- 1 Check that no shade is falling across the panels
 - 2 Confirm the panel is aimed at the sun, not the ground
 - 3 Reseat every connection from panel to controller to battery
 - 4 Check the fuses and the controller's status light
 - 5 Remember a full battery simply stops accepting charge
- Nine times out of ten it is shade or a loose plug. Move the panel into clean sun, push every connector in firmly, and watch the charge come back to life.
- ### RIGID VS FLEXIBLE 37. Rigid and Flexible Panels
- Panels come in two builds. Rigid panels have a hard frame and glass face; they are the common, long-lasting, efficient choice and the one most people pick. Flexible panels are thin and can curve to a rounded roof or be stashed easily, but they usually make a little less power and do not last as long. Each has a place. Rigid: framed, glass-faced, efficient and long-lasting Flexible: thin and curved, lighter, easy to stow Flexible often makes a bit less power and ages faster Rigid is the default; flexible suits curved roofs or portability Unless your roof is curved or you truly need the thin, light build, rigid panels are usually the better long-term value. They simply gather more and last longer for the money.
- ### WIRING PANELS 38. Wiring Panels Together
- When you have more than one panel, there are two ways to connect them, with the clunky names series and parallel. You do not need the engineering, just the idea: how you wire them changes the voltage and current the controller sees. A good installer or kit instructions will tell you which way suits your controller and panels. Two panels can be wired in series or in parallel The choice affects the voltage and current reaching the controller Series can help on longer wire runs; parallel handles shade differently Follow your kit's or controller's guidance on which to use

TIP

22. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech

If this starts to feel like homework, it is a fine place to lean on a kit's instructions or a bit of help. Getting the wiring method right lets your controller collect everything the panels make. **TILT KITS 39.** Tilt Legs for More Winter Power Roof panels normally lie flat, which is a compromise. A tilt kit is a set of simple legs that let you prop the panels up at an angle toward the sun. In the low-sun months especially, tilting panels toward the southern sky can noticeably boost what they gather on a short winter day. Tilt legs prop flat roof panels toward the sun The biggest gain is in low-sun fall and winter You set them when parked and lower them to drive A cheap way to squeeze more from the panels you have **WATCH OUT** Always lower tilted panels flat before you drive away. A raised panel caught by highway wind can be torn right off the roof — make lowering them part of your leaving routine. **CHARGING FROM ENGINE 40.** Charging From the Engine Too Solar is not your only way to refill the house battery. A device called a DC-to-DC charger lets your vehicle's engine safely top up your house battery while you drive, which pairs beautifully with solar. The sun charges while you sit; the engine charges while you roll. Together they keep you full in almost any weather. A DC-to-DC charger refills the house battery as you drive It pairs well with solar for all-weather charging The sun fills while parked; the engine fills while moving Especially handy for stretches of gray days On a run of cloudy days, a DC-to-DC charger means a travel day also becomes a charging day. Many serious boondockers run both it and solar so they are never at the mercy of the weather.

WHAT IT RUNS

23. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech

41. What Solar Can and Can't Run Solar handles your everyday camping loads beautifully: lights, the water pump, the fridge, phones, a fan, even internet gear. What it struggles with are the big heat-makers and the air conditioner, which ask for more power than a reasonable system can supply for long. Knowing the line keeps your expectations honest. Easy: lights, pump, fridge, phones, fans, internet gear Hard: hair dryers, kettles, and other heat-makers Usually too much: running an air conditioner for hours Match your dreams to what the system can really deliver WATCH OUT Do not buy solar expecting to run a rooftop air conditioner all afternoon. That is a job for shore power or a generator; solar is for the steady, everyday loads that make camping comfortable. YOUR CHECKLIST 42. Your Solar Checklist Here is the short version to keep by the door of the rig. If you can check these off, your solar setup is sized right and ready to keep you powered off the grid. Added up my real daily use in watt-hours Sized panels to replace that on a realistic sunny day Sized the battery to ride out a cloudy day or two Chose lithium, or know the limits of my lead-acid Have an MPPT controller for a system of any size Set a plan for shade, clouds, and short winter days Fuses and wiring are the right size and safe Tape this list inside a cabinet door. A thirty-second glance before each trip keeps your power steady and your off-grid camping worry-free.

WHEN TO CALL**24. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech**

43. When It Is Worth Calling Me A portable panel and a power station are something almost anyone can set up alone, and I hope this guide makes that easy. But if you are planning a full roof system, if you are not sure how to size panels and battery for how you really camp, or if the wiring and fuses give you pause, that is exactly what I am here for. I will give you the honest answer, even when the honest answer is that a simple portable panel will do everything you need. I can sit down with you, size a system to your real camping, and help you set it up safely so you leave on your trip with free power from the sun. My first in-home visit is a flat \$99, and remote help by screen-share is \$49. Call or text me at (330) 200-8042. CHEAT SHEET Everyday Cheat Sheet Keep this page handy. It is the short answer to the questions RVers ask most about solar. Four parts: panels, charge controller, battery, inverter Panels are rated in watts; you harvest less than the sticker says An MPPT controller is worth it on any real system Lithium (LiFePO4) lets you use nearly all its stored power Size panels to replace your daily use; size the battery for a cloudy day Shade, clouds, and short winter days all cut your harvest hard A portable panel plus a power station is the easiest way to start Keep panels clean and roof seals sound each season Get help: call Bill at (330) 200-8042

HOW I CAN HELP

25. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech

Your Visit — and My Promise In-home visit — \$99 flat for your first visit. No contracts and no surprise charges, and a 30-day follow-up is included. Remote Support — \$49 for a screen-share session. I only connect with your permission, you watch the whole time, and you can end anytime. If I can't fix it over the screen-share, I refund the \$49 — and if it turns out you need me in person, that \$49 goes toward your visit. It's included free for Support Plan members (\$39/mo). My promise — If you're not 100% satisfied with your visit, I'll come back at no charge, or refund the full \$99. No questions, no awkwardness. That's how I'd want to be treated. Call or text (330) 200-8042 · Book a visit: billshometech.com/book · bill@billshometech.com This free guide is for general information only — not professional advice, and no substitute for your device's own manual. Any prices or outside products mentioned can change; please confirm current details before you buy. Please use your own good judgment and follow it at your own risk — for anything involving electricity, gas, water, or heights, stop and call a licensed professional. Bill's Home Tech and Bill Davis can't be responsible for any damage, data loss, or injury that results. © 2026 Bill's Home Tech, LLC.

AT A GLANCE

A Picture to Follow Along

Roof Panels, Portable, or a Power Station?

Match the setup to how you camp.

Portable Panel

Folds up and stows away
Aim it at the sun
Great for shady sites

Roof System

Always on, nothing to
set
Best for open, sunny
sites
More install and cost

Power Station

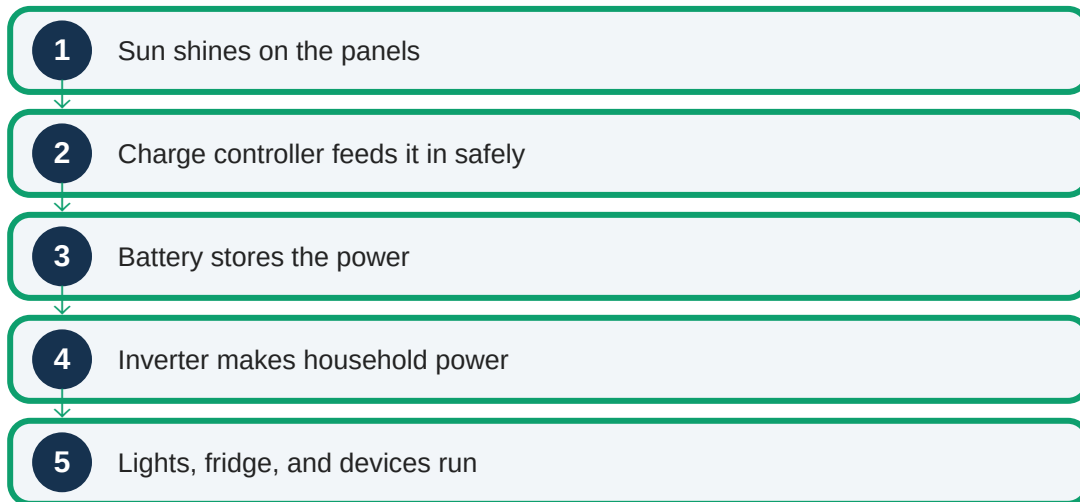
Battery and controller
in one
Plug a panel straight in
Easiest way to start

AT A GLANCE

A Second Look

How Sun Becomes Power in Your Rig

The same path in every solar setup.



BEFORE YOU GO

A Note From Bill

A quick note from Bill. I write these guides to make home tech a little less frustrating, and I do my best to keep every step accurate and up to date. Still, every home, device, and setup is a bit different, so I can't promise a guide will match yours exactly or fix your particular problem. These guides are for general information only — they're not professional, legal, or financial advice, and they don't replace your device's own manual or the manufacturer's instructions. Please go slow, use your own good judgment, and use everything here at your own risk. If a step involves electrical wiring, a gas appliance, a water heater, plumbing, or climbing a ladder — or if anything just doesn't feel safe — please stop and call a licensed professional (or give me a call at 330-200-8042). Bill's Home Tech and Bill Davis can't be responsible for any damage, data loss, or injury that results.



HOW I CAN HELP

Your Visit — and My Promise

In-home visit — \$99 flat for your first visit. No contracts and no surprise charges, and a 30-day follow-up is included.

Remote Support — \$49 for a screen-share session. I only connect with your permission, you watch the whole time, and you can end anytime. If I can't fix it over the screen-share, I refund the \$49 — and if it turns out you need me in person, that \$49 goes toward your visit. It's included free for Support Plan members (\$39/mo).

GOOD TO KNOW

My promise — If you're not 100% satisfied with your visit, I'll come back at no charge, or refund the full \$99. No questions, no awkwardness. That's how I'd want to be treated.

Call or text **(330) 200-8042** · Book a visit: **billshometech.com/book** · **bill@billshometech.com**

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