BILL'S HOME TECH

Home & Small Business Tech Solutions

An Extended Guide · No. 1505

Adding Batteries for Backup Power

The piece that keeps your power on in an outage

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! Read this first — two honest truths about home solar

Two honest truths before we start, because they surprise a lot of good folks. First, home solar is a professional job — it takes a licensed installer, building permits, and your utility's approval to connect (called interconnection). This guide is here to help you understand, plan for, and live with solar; it is not a do-it-yourself project, and I never want you climbing on a roof or opening an electrical panel. Second, a plain grid-tied solar system — one without a battery — shuts itself off during a power outage, even in bright sunshine. That is a required safety feature, so the system cannot put electricity onto the lines while the crews are repairing them. If keeping the lights on during an outage matters to you, you will need a battery, and we will talk about that plainly. A battery is the piece that answers that second truth — it's how solar keeps your power on when the grid goes down.

Adding a battery: solar that works in an outage

A home battery is what turns solar from a bill-lowering helper into a source of backup power. If keeping the lights (or the well pump) on during an outage matters to you, this is the guide that explains how — plainly, and without dollar guessing.

I'm Bill, of Bill's Home Tech in Portage County. Batteries are a bigger, pricier decision than panels alone, so we'll go slow and honest. No sizing numbers pulled from thin air — those come from a proper design for your home and your must-run list.

Whether you add a battery now, plan for one later, or decide you don't need one, my goal is that you understand exactly what it does and doesn't do before you spend a dime.

★ Let's build your must-run list first

The smartest first step isn't picking a battery — it's deciding what truly must stay on in an outage. Bring me your worries and we'll make that list together, before you talk sizing with an installer. Call or text (330) 200-8042.

Batteries for backup, on one page

The whole idea in a handful of points.

- ❑ A battery stores solar power for the evening or for an outage.
- ❑ It's what lets solar keep chosen circuits on when the grid is down.
- ❑ Batteries are usually sized for essential loads, not the whole house.
- ❑ The sun refills the battery each day, which stretches an outage.
- ❑ You can add a battery now, or make the system 'battery-ready' for later.
- ❑ Sizing depends on your must-run list — a job for your installer, not a guess.

> **✔ A battery is the outage answer**
> Remember the theme: plain grid-tied solar goes dark in a blackout. A battery — and only a battery — changes that. Everything in this guide flows from that one fact.

What a battery actually does

At heart, a battery is simple: it saves power now to use later. But that simple ability unlocks a lot.

By day, when your panels make more than you're using, the extra can charge the battery instead of only flowing to the grid. Then, in the evening, or the moment the grid goes down, that stored power runs your home — or your chosen circuits — instead of leaving you in the dark.

In a hybrid system, this happens automatically and almost instantly when an outage hits. The system safely disconnects from the grid and keeps your backed-up circuits alive, recharging from the sun each day. That automatic, silent hand-off is the whole appeal.

> **✔ Two jobs: everyday and emergency**
> A battery can do double duty — shifting your solar into the evening on ordinary days, and carrying you through outages. Which job matters more to you shapes how it's set up and sized.

Backing up essentials, not everything

Here's the expectation that keeps folks happiest: most batteries keep the important things running, not the entire house at full tilt.

When your system is designed, you and your installer pick which circuits the battery protects — an 'essential loads' or 'backup' panel. Common choices: the refrigerator, some lights, the internet, phones, a furnace fan, and for well homes, the pump.

Leaving the big power-hungry loads off backup — central air, electric range, electric water heater — lets a sensibly sized battery last far longer. You get the essentials for a good while instead of everything for a short while. Whole-home backup is possible but takes much more battery.

> **✔ Shorter list, longer runtime**
> The fewer things on your backup list, the longer the battery carries you. Deciding what truly must stay on is the single most useful thing you can do — and it keeps the cost sensible.

Sizing: the tank and the tap

A battery is described by two numbers, and you need enough of both. I won't guess yours — but here's how to think about it.

One number is energy — how much the battery holds, in kilowatt-hours. Picture the size of a tank: it sets how long the battery can keep things running. The other is power — how much it can deliver at once, in kilowatts. Picture the size of the tap: it sets what you can run at the same time.

A battery needs a big enough tank for your outage and a wide enough tap for your loads — especially a demanding one like a well pump that needs a big jolt to start. Matching both to your must-run list is exactly what a good installer's design does. Our parts guide explains these numbers too.

> **! Beware anyone sizing your battery sight-unseen**
> Real sizing comes from your must-run list and your loads, not a rule of thumb. If someone quotes a battery size without studying what you need to run, take it with a grain of salt. A proper design gives honest numbers.

How long will it keep me powered?

The question everyone asks. The honest answer is 'it depends' — but here's how to think about it sensibly.

Runtime depends on how big the battery is and how much you're drawing from it. Run just the essentials and it stretches; try to run the whole house and it empties fast. That's why the must-run list matters so much.

The lovely part in a solar home is that the sun refills the battery each day. So in a daytime outage with decent sun, a battery can often carry you day after day on essentials — charging by afternoon, coasting through the night. In a long, dark stretch it leans on stored charge, which is where a generator can help.

> **✔ Sun recharge is the secret ingredient**
> Unlike a battery alone, solar-plus-battery refills itself each sunny day. That can turn a few hours of backup into days of essentials — as long as the sun keeps showing up.

Two kinds of homes, two sets of needs

Whether a battery is a comfort or a near-necessity depends a lot on where you live and what depends on your power.

If you live in town or the suburbs

In town or the suburbs, outages are usually short and city water keeps flowing. A battery here is mostly about comfort — riding out a blip, keeping the fridge and internet going, avoiding resetting every clock.

- Short outages make a modest battery a nice convenience.
- It shines for a medicine fridge or home medical device.
- You can often start without one and add it later.
- Whole-home backup is rarely needed for brief town outages.

If you are out in the country on a well

Out in the country, outages last longer and your well pump stops when the power does — no water until it's back. That pushes a battery from comfort toward genuine need, and often toward pairing with a generator.

- Longer outages make stored power far more valuable.
- Backing up the well pump takes a battery with enough 'tap' to start it.
- A battery plus a generator covers both short and marathon outages.
- Ask your installer to plan the battery around your well pump.

> **★ On a well? Let's size backup right**
> Backing up a well pump is demanding, and worth planning carefully. Tell me about your home and I'll help you think through a battery that can actually keep your water flowing. Call (330) 200-8042.

Add a battery now, or make it battery-ready?

You don't have to decide the battery question the same day as the panels. There's a sensible middle path.

If backup is a priority and the budget allows, adding the battery with the rest of the system is cleanest — it's designed in from the start. If the budget is tight or you're unsure, you can ask for a 'battery-ready' setup: the system is built so a battery can be added later without a costly redo.

The one thing to avoid is not thinking about it at all. Adding a battery to a system that wasn't designed for one can mean extra equipment and expense. A little foresight now keeps the door open cheaply.

> **✔ Ask what 'battery-ready' would add**
> Even if you wait, ask your installer what it costs to make the system battery-ready today versus retrofitting later. That one question can save real money down the road.

How a battery connects to solar

A little plain picture helps you follow a proposal — no engineering required.

A battery can be built in from the start using a hybrid inverter made to handle panels and storage together. Or it can be added to an existing grid-tied system, sometimes with its own extra equipment to tie it in. Installers sometimes call these approaches DC-coupled and AC-coupled; you just need to know both exist and the first is often simpler when planned up front.

The practical takeaway: if you might want a battery, a hybrid, battery-ready setup from the start usually makes life easier and cheaper than bolting one on later. Your installer can explain which approach suits your situation.

> **✔ Simpler when planned from the start**
> Designing for a battery up front — even if you install it later — tends to beat retrofitting. It's the difference between leaving a door open and knocking a new one through the wall.

What a battery can realistically run

Batteries are wonderful but not bottomless. Knowing what they handle easily — and what strains them — keeps expectations honest.

- **Easy:** lights, phones, internet, a fridge or freezer, a CPAP, a television.
- **Doable, with planning:** a furnace blower, a sump pump, a microwave — ideally one at a time.
- **Demanding:** a well pump, which needs a big jolt to start and must be planned for.
- **Usually left off backup:** central air, electric range, electric water heater — big, steady draws.

This isn't a knock on batteries — it's just how power works. A good installer sizes the battery to your list. For the demanding well-pump case, see our dedicated guide on solar, batteries, and your well pump.

A battery and a generator, together

For serious outage resilience — especially in the country — a battery and a generator make a great team rather than rivals.

A battery is quiet, automatic, fuel-free, and instant, but holds a limited amount. A generator can run as long as you have fuel, but is noisy, needs tending, and (for gas types) makes exhaust that must stay outdoors. Each covers the other's weak spot.

So a common, sensible plan is a battery for the frequent short outages and quiet nights, and a generator held in reserve for the rare, days-long event that would drain any battery. Our generator guides cover that side in full.

> **✔ Battery for the sprints, generator for the marathon**
> Think of the battery as your effortless everyday backup and the generator as your heavy-duty, long-haul insurance. Together they handle both the flicker and the multi-day storm.

Battery safety and placement

A home battery stores a lot of energy, so it's designed and installed with real care. A few reassurances and one firm rule.

Home batteries come with built-in safety systems and are tested to recognized safety standards. Where yours can go — indoors, in a garage, on an outside wall — depends on the product and local code, and there are rules about clearances and ventilation. Your installer handles all of that to code.

This is emphatically not a buy-it-online-and-wire-it-yourself item. A properly chosen, professionally installed battery is safe and low-fuss; a homemade or bargain unlisted one is a genuine hazard.

> **! Leave battery installation to the pros**
> Please never try to install or wire a home battery yourself. Placement, ventilation, and connections all have safety rules behind them. A licensed professional — not a DIY kit — is the only safe way to add one.

Battery lifespan and warranty

A battery is a long-term component with its own lifespan and warranty, separate from the panels. Worth understanding before you buy.

Home batteries are built to last many years, but like any battery they do wear gradually with use. They come with their own warranty, often stated in years and sometimes in how much energy they'll deliver over their life. Ask about both, and who honors the warranty.

Because a battery is a significant part of the investment, weigh its warranty and the maker's reliability carefully — much as you would the inverter. Our warranties guide covers how to read all the coverage in a solar system.

> **✔ Ask how the warranty is measured**
> A battery warranty might be stated in years, in total energy delivered, or both. Ask which, and what output it promises at the end of the term, so you know what you're really getting.

Backup only, or everyday use too?

A battery can just sit ready for outages, or it can earn its keep every day. Which makes sense depends partly on your utility.

If your net metering is generous, exporting extra solar for a good credit works well, and the battery is mostly there for backup. If your crediting is weak — as it can be on some rural co-ops — storing your extra power in the battery to use yourself after sunset may be worth more than sending it out cheaply.

Some setups also use a battery to shift power into the priciest hours where utilities charge different rates by time of day. Your installer can weigh whether everyday use adds value for you, or whether backup alone is the point. Our net-metering guide covers the crediting side.

> **✔ Weak credit tilts toward everyday self-use**
> The less your utility pays for exported power, the more a battery's everyday self-use is worth — not just its backup role. That's a real consideration for rural homes on a stingier plan.

What happens the moment the power goes out

Here's the reassuring sequence, so you know exactly what to expect when an outage hits a hybrid system.

The instant the grid drops, the system safely disconnects your home from the utility lines — so nothing feeds back to endanger a crew — and switches your backed-up circuits over to the battery. In a good setup this is automatic and so fast you may barely notice.

From there, the battery runs your essentials, and each day the sun tops it back up. When grid power returns, the system reconnects and goes back to normal on its own. You mostly just carry on.

> **✔ Automatic is the goal**
> In a well-designed hybrid system you shouldn't have to flip anything — the switch to battery and back happens by itself. Confirm with your installer that the backup is automatic, so an outage is a non-event.

Battery backup at a glance

The essentials of adding a battery, on one page.

Question	The short answer
What's it for?	Backup and evening use
Whole house?	Usually essentials
How long?	Depends on size & loads
Refills how?	From the sun each day
Add later?	Yes — go battery-ready
Sizing?	By your must-run list

Every 'it depends' here points back to the same thing: your must-run list and your loads. Nail those down and an installer can size a battery honestly — no guessing required.

A word on cost and incentives

A battery adds real cost, and any incentives that touch it are — like all solar incentives — a moving target.

I won't put a number on a battery; it depends on size, your home, and the market. What I'll say is that a battery is a meaningful addition to the price, so weigh its backup value honestly against the cost. It's worth a lot to some homes and little to others.

As for incentives, the rules for batteries and solar have shifted and can shift again, and they depend on how you pay. Don't let a salesperson's incentive math justify a battery — confirm what actually applies with a licensed tax professional, as our incentives guide urges.

> **! Don't let an incentive alone sell you a battery**
> A battery should earn its place on backup value first. If it only pencils out because of an incentive, remember those change — verify the incentive with a tax pro, and make sure the battery makes sense to you even without it.

Building your must-run list

Everything about a battery starts here. A clear list is the foundation of a right-sized, sensibly-priced system.

Walk your home and ask: if the power were out for a day or two, what would I truly need running? For most folks that's the fridge, a few lights, phones and the internet, perhaps the furnace fan, and — if you're on a well — the pump. Medical equipment goes at the very top.

Write it down and rank it. That list tells your installer both the 'tank' and the 'tap' your battery needs, and keeps the system from being oversized (costly) or undersized (disappointing). It's the single most useful thing you can bring to a design conversation.

> **★ I'll help you make the list**
> Deciding what must stay on in an outage is exactly the kind of thing I love to help with, and it makes every later step easier. Call (330) 200-8042 and we'll build your must-run list together.

Questions to ask about a battery

Put these to any installer to be sure a battery is sized and set up right for you.

Q: What exactly will this battery keep running, and for how long?
You want named circuits from your must-run list and an honest range, not vague 'whole-home backup.' The answer should reflect both the battery's tank and its tap.

Q: Is the backup automatic, and how fast does it switch over?
In a good hybrid system it's automatic and near-instant. Confirm you won't have to flip anything when an outage hits.

Q: If I wait, what would make the system battery-ready now?
This tells you whether to prepare today for a battery later. A good installer explains the trade-off between adding it now and retrofitting down the road.

> **✔ Specifics separate the pros from the pitches**
> A trustworthy installer answers with named circuits, honest ranges, and clear trade-offs. Vague reassurance about 'powering your home' is a cue to keep asking.

Common battery misconceptions

A few tidy corrections to the ideas that trip folks up.

- **'A battery runs my whole house for days.'** Usually it runs essentials for a while — sized to your list.
- **'Solar alone gives me backup.'** No — only a battery (or generator) does; plain solar shuts off in an outage.
- **'I can add any battery to any solar.'** It's far simpler if the system is battery-ready or hybrid.
- **'The battery never wears out.'** It lasts years but does age; check its warranty.
- **'Bigger battery is always better.'** Size it to your needs — extra capacity you won't use is wasted money.

> **✔ Right-sized beats biggest**
> As with panels, the goal isn't the biggest battery — it's the one matched to your must-run list. A sensible size keeps the cost fair and the runtime right where you need it.

Common Questions

The questions I hear most about adding a battery.

Q: Do I need a battery to get backup power?

For practical purposes, yes. Plain grid-tied solar shuts off in an outage for safety. A battery (or a generator) is what keeps your power on — there's no way around that with panels alone.

Q: Will a battery run my whole house?

Usually it's set up to run essential circuits, which is smarter than trying to run everything — a sensibly sized battery then lasts far longer. Whole-home backup is possible but takes much more battery and cost.

Q: Can I add a battery to solar I already have?

Often yes, though it's simpler and cheaper if the system was designed battery-ready or uses a hybrid inverter. Adding one to an older grid-tied system can take extra equipment — your installer can explain the options.

Q: How long will a battery power my home in an outage?

It depends on the battery's size and what you're running — and the sun refills it each day. On essentials with decent sun, a battery can carry you day after day; running everything drains it fast. Your must-run list is the key.

> **★ Thinking about backup power?**
> A battery is a big, worthwhile decision, and I'm glad to help you weigh it honestly for your home. Call or text me at (330) 200-8042 — no sales pitch, just straight talk.

You don't have to do this alone

You just have to remember that a friendly, patient person is one call away.

I hope this guide made adding a battery to your solar feel a little less daunting and a lot more doable. Keep it in a drawer with your other home papers, come back to a page whenever you need it, and don't worry about memorizing anything.

When you'd rather have a hand, that's exactly what I do. I come to your home, work at your pace, and never make you feel rushed or silly for asking. A first visit is a flat $99, and for the parts that don't need me on-site I can often help right on your screen for $49. Every visit comes with a 30-day, come-back-free guarantee. I don't sell solar and I don't do the licensed electrical work or the rooftop install myself — I help you understand it all, ask the right questions, and line up a trustworthy local solar installer, so you never feel talked into anything.

> **★ Bill's Home Tech — real help, close to home**
> Call or text me at (330) 200-8042, or visit BillsHomeTech.com. Serving Atwater and all of Portage County. 30+ years of patient, plain-English tech help — and if you're ever not 100% happy with a visit, I'll make it right or refund it. That's a promise. — Bill

What a Battery Backs Up

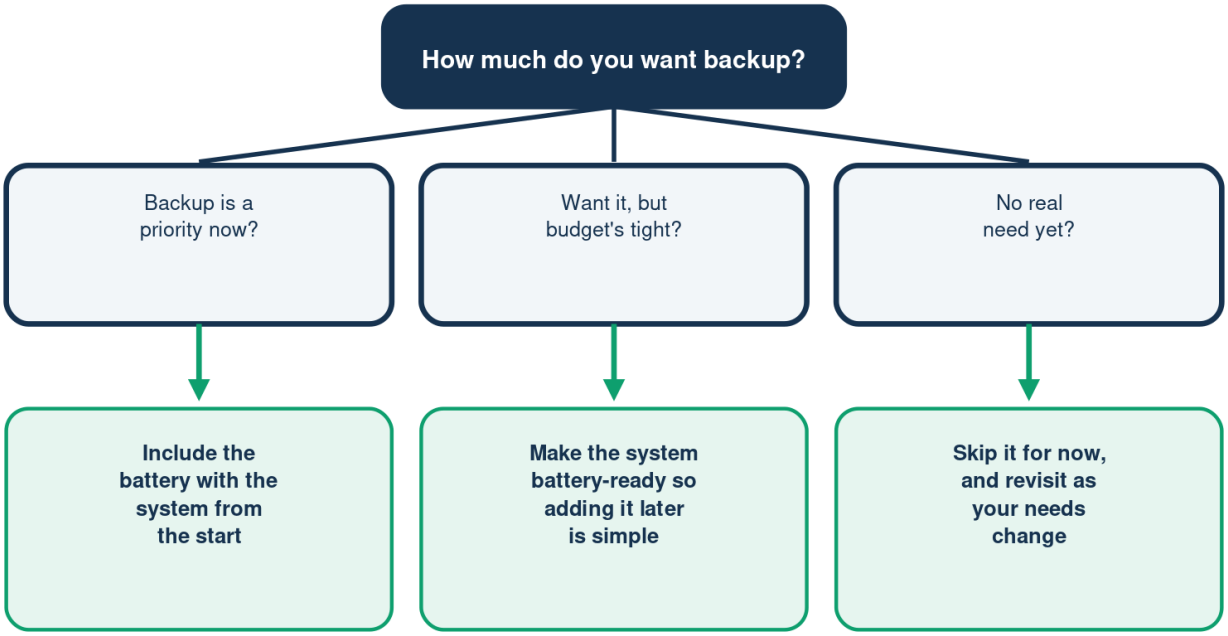
Sized for essentials, not the whole house at once

	Usually yes	Plan for / leave off
Fridge & lights	Easy	Keep on backup
Wifi & phones	Easy	Keep on backup
Furnace blower	Doable	One at a time
Well pump	Demanding	Must be planned
Central AC / range	Heavy	Usually left off

A shorter must-run list makes a sensible battery last much longer.

Add a Battery Now, or Later?

When storage makes sense for you

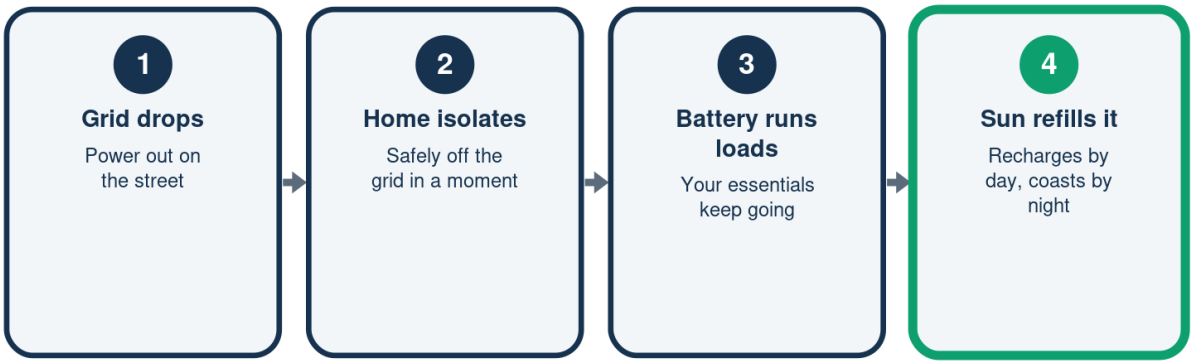


Don't let an incentive alone sell a battery -- verify with a tax pro.

Illustration - a schematic, not to scale. Your setup may differ.

How a Battery Backs You Up

The automatic sequence when the grid drops



In a good hybrid setup this is automatic -- you barely notice.

Install Now vs Battery-Ready

You don't have to decide storage the same day as panels

	Install now	Battery-ready
Upfront cost	Higher now	Lower now
Outage backup	Right away	Later
Adding later	Done	Made simple
Best if	Backup matters	Budget's tight

Avoid only one thing: not planning for a battery at all.

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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 comes from using these guides. Thanks for reading, and stay safe out there.

— Bill

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