



An Extended Guide · No. 1573

Why Grid-Tied Inverters Go Dark in an Outage

Anti-islanding explained —
and how batteries change it

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! Read this first — two honest truths about solar inverters

Two honest truths before we start, because they surprise a lot of good folks. First, the inverter is the brains of your solar system, and it ties straight into your home's electrical panel — so choosing one, replacing one, or adding a battery to it is a professional job. It takes a licensed installer, a building permit, and your utility's approval to connect (called interconnection). This guide is here to help you understand and choose wisely; it is not a do-it-yourself project, and I never want you opening a solar inverter or an electrical panel yourself. Second, a plain grid-tied inverter shuts itself off during a power outage, even in bright sunshine, so it 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 want a hybrid or battery-capable inverter and a battery — and we will talk about that plainly. This whole guide is about that second truth — it's the most misunderstood thing about solar, and the one I least want you to learn the hard way.

Sun's out, power's off — why are the panels idle?

It surprises almost everyone: the power goes out on a bright, sunny afternoon, and the solar panels on the roof sit there doing nothing. It's not a malfunction. It's exactly how your inverter is designed to behave — and there's a very good reason.

I'm Bill, of Bill's Home Tech in Portage County. I'd rather you hear this from me now, calmly, than discover it during your first real outage. So let's walk through why your inverter does this and, just as important, what you can do about it.

The short version: a grid-tied inverter without a battery shuts off when the grid does, to keep utility workers safe. A battery-capable (hybrid) inverter is what changes that. This guide unpacks both halves in plain English.

★ If backup matters, let's plan it

Whether it's a well pump, a medicine fridge, or just peace of mind, I can help you figure out what it takes to keep power in an outage. Call or text me at (330) 200-8042 — no sales pitch, just straight answers.

The whole idea, on one page

If you remember only this page, you'll never be caught off guard by how your inverter behaves in an outage.

- ❑ A grid-tied inverter with no battery shuts off in an outage — even in full sun.
- ❑ It does this on purpose, so it can't put power on lines a crew is repairing.
- ❑ This safety behavior is called anti-islanding, and it's required by safety standards and by your utility.
- ❑ A hybrid inverter with a battery lets you keep chosen circuits running when the grid is down.
- ❑ It works by safely disconnecting your home from the grid first, then powering your backed-up circuits.
- ❑ Never try to bypass the shut-off or rig your own backup — it's dangerous and illegal.

✓ The one-sentence takeaway

Plain solar keeps your bills down; a battery keeps your lights on. If you want both, you want a hybrid inverter and a battery.

The surprise nobody warns you about

Let's name the thing plainly, because too many folks find it out at the worst possible moment.

You'd think that if your roof is covered in panels making power, a blackout wouldn't touch you. It seems only logical. But a standard grid-tied inverter doesn't work that way. The instant the utility power drops, your inverter senses it and shuts the whole system down.

So there you are — sun blazing, panels idle, house dark, just like your neighbors without solar. The inverter keeps the system off until the utility restores power, then it quietly starts up again on its own. Nothing is broken; it's doing exactly its job.

! Better to know now than during a storm

This isn't a reason to avoid solar — it's a reason to decide, up front, whether you want a battery. The folks who are unhappy are the ones who were never told. Now you know.

Why the inverter shuts off: keeping crews safe

The reason is genuinely good, and once you hear it, the behavior makes perfect sense.

When the power goes out, utility crews go to work on the lines, often assuming those lines are dead. If your inverter kept pushing electricity onto the grid during an outage, it could put dangerous voltage on wires a worker believes are safe to touch. That could seriously hurt or kill someone.

To prevent that, every grid-connected inverter is required to detect when the grid is down and disconnect itself within moments. It simply won't feed the lines when the utility is off.

Engineers call this anti-islanding — the inverter refuses to let your home become its own little 'island' of power connected to dead grid lines.

! This is a feature, not a fault

The shut-off is protecting real people doing dangerous work in the storm. It's one of the reasons solar must be installed by professionals and approved by your utility — so your inverter behaves safely, every time.

It's not optional — it's the standard

This behavior isn't up to your installer or your preference. It's built into the standards and rules that make solar safe and legal.

Grid-connected inverters are built and tested to national safety standards — you may see them referred to as UL 1741 and IEEE 1547 — that require the anti-islanding shut-off. On top of that, your utility's interconnection agreement (the permission that lets your system connect to the grid) requires it, and the National Electrical Code governs the safe wiring around it all.

You don't need to memorize those names. The point is simply that every properly installed grid-tied inverter, from every reputable installer, behaves this way. It's not a corner your installer cut — it's the safety rules doing their job.

✓ Why this reassures rather than worries me

The same rules that turn your panels off in an outage are what keep your system from ever endangering a neighbor or a lineman. That's the kind of safety I'm always glad to see built right in.

'Islanding,' in plain words

It's a bit of jargon, but the picture behind it is simple and worth having.

Imagine the power grid as a great connected sea. Normally your home is part of that sea, giving and taking power. In an outage, the sea goes calm — no power moving. If your inverter kept generating and pushing power out, your house would become a little 'island' of live electricity in that dead sea.

That island is exactly the danger: live wires where everyone expects dead ones.

Anti-islanding is the rule that says your inverter must not do that. It has to notice the sea has gone calm and take itself offline until the grid comes back.

✓ A battery makes a safe island

The clever part: a hybrid inverter with a battery creates its own little island on purpose — but it first disconnects your home from the grid so nothing flows back to the lines. Safe island, lights on. That's the next part of our story.

How a battery changes everything

Here's the good news you've been waiting for. A hybrid inverter with a battery gives you power in an outage — safely and automatically.

A hybrid inverter includes the smarts to, the moment the grid goes down, safely disconnect your home from the utility lines. With that connection broken, there's no danger to any crew — so your solar and battery are now free to power your home's backed-up circuits.

Even better, it usually happens automatically and almost instantly. Many folks barely notice the switch-over. Through the day, the sun refills the battery; through the night, the battery carries your essentials. That's the whole magic — and our hybrid-inverter guide covers it in full.

✓ It's the disconnect that makes it safe

The reason a battery can keep your panels working when plain solar can't is that it isolates your home from the grid first. Same panels, same sun — but now no path back to the lines, so it's allowed to run.

What about that 'backup outlet' I've heard of?

You may run across a feature on some inverters that offers a sliver of daytime power without a battery. It's real, but small.

A few grid-tied inverters include a single, limited outlet that can provide a modest amount of power during an outage — but only while the sun is actually shining, and only a little. It's meant for charging a phone or running a small device, not powering your home.

It's a nice bonus if your inverter happens to have it, but it's no substitute for a battery. It gives you nothing at night or under heavy cloud, and it can't run a fridge, a furnace, or a well pump. Treat it as a convenience, not a backup plan.

! Don't mistake a trickle for true backup

If a salesperson leans hard on a 'built-in backup outlet' to avoid talking about batteries, be careful. For real outage protection, a battery is the honest answer, and I'll always tell you so.

Please never try to bypass the shut-off

Because the shut-off can feel frustrating, folks sometimes wonder about working around it. This is one place I have to be firm with you.

Do not ever try to rig your own backup, bypass the anti-islanding protection, or wire a generator or battery into your home in some homemade way. Doing so can send deadly voltage onto the utility lines, endanger the crews, start a fire, and it's illegal on top of all that.

Every safe form of backup — a hybrid inverter with a battery, or a generator with a proper transfer switch — keeps your home from ever feeding the lines during an outage. That safety is the whole point, and it has to be done by a licensed professional. There's no safe shortcut.

! The same rule as a 'suicide cord'

You may have heard warnings about back-feeding a house through an outlet with a double-ended cord. Same danger here: never create a path that could energize the grid in an outage. Let the pros build it right.

Two kinds of homes, two sets of needs

How much the outage rule matters depends a great deal on where you live — and especially on where your water comes from.

If you live in town or the suburbs

In town or the suburbs, outages are usually short and city water keeps flowing regardless. Going dark for an hour or two is an inconvenience, not a crisis, so many folks accept plain grid-tied solar.

- Short outages make a battery more comfort than necessity.
- A battery still shines for a medicine fridge or home medical gear.
- You can start without one and add it later if outages start to bother you.
- Even a small backup keeps the fridge and phones going through a blip.

If you are out in the country on a well

Out in the country, the outage rule bites harder. Outages last longer, and when the power stops, your well pump stops — no water for drinking, cooking, flushing, or the animals until it comes back.

- No power can mean no water, which turns backup from nice to necessary.
- A well pump is a demanding load, so a hybrid and battery must be planned around it.
- Long rural outages may need a battery and a generator working together.
- Store some drinking water regardless — a simple, cheap safety net.

★ On a well? This is the guide that matters most

If your water depends on electricity, the outage rule is not academic. Let me help you plan real backup for your pump and your household. Call (330) 200-8042.

How to know it's the rule, not a fault

During an outage it can feel like something failed. Here's how to tell it's just the safety shut-off doing its job.

If the neighborhood power is out and your solar has gone quiet, that's almost certainly the anti-islanding shut-off, not a broken inverter. The tell-tale sign is timing: it went dark exactly when the grid did, and it will come back on its own a little while after the utility restores power.

You don't need to do anything. Don't go flipping switches or poking at the inverter. Once the grid is steady again, your inverter reconnects automatically — sometimes after a short waiting period it uses to make sure the grid is truly back for good.

✓ A short wait after power returns is normal

Many inverters pause for a few minutes after the grid comes back, just to be sure it's stable, before they start feeding power again. If yours seems slow to wake up right after an outage, that patience is by design.

Battery, generator, or both?

A battery isn't the only way to keep power in an outage. It's worth knowing how it stacks up against a generator you may already own.

A battery-backed hybrid is quiet, automatic, needs no fuel, and kicks in instantly — but it holds a limited amount and can run down in a long outage unless the sun keeps refilling it. A generator can run as long as you have fuel, but it's noisy, needs starting and refueling, and the gas kinds make deadly exhaust that must stay outdoors.

For many homes, especially rural ones, the smartest plan is both: a battery for the frequent short outages and quiet nights, and a generator for the rare multi-day event. Our generator guides cover that side in depth.

✓ They solve different problems

Think of the battery as your everyday, effortless backup and the generator as your heavy-duty, long-haul insurance. Used together, each covers the other's weak spot.

When someone at home depends on power

If a person in your home relies on powered medical equipment, the outage rule stops being a convenience question and becomes a caring, careful plan. Let's treat it that way.

Oxygen concentrators, CPAP or BiPAP machines, medication refrigerators, powered wheelchairs — these need power you can count on. Solar with a battery can be one reassuring layer, but it should never be the whole plan by itself.

Keep the manufacturer's approved battery backups, register with your utility's medical-priority list, tell your equipment supplier your plan, and ask your doctor for guidance. Our whole-home-solar guide on backing up the fridge and medical gear covers this gently and in full.

! If equipment fails and backup runs low

If medical equipment stops and your backup is running down, or someone has trouble breathing, chest pain, confusion, or blue lips, call 911 right away and have a plan to get to a place with power. A battery is a layer, never a substitute for that plan.

Can I add backup to solar I already have?

If you already have plain grid-tied solar and wish you had backup, there's usually a path forward.

In many cases you can add a battery to an existing system, though it may take extra equipment depending on your current inverter. Sometimes a separate battery inverter is added alongside your existing one; sometimes the inverter itself is replaced with a hybrid. The right route depends on what you have now.

It's often simpler and cheaper if the system was made 'battery-ready' at install, which is why it's worth asking about even before you buy. Our guides on hybrid inverters and on adding batteries walk through the choices without any pressure.

✓ Ask 'battery-ready' before you install

If you're going solar now but the battery budget isn't there yet, ask whether the system can be made battery-ready. It keeps the door open and can save real money later.

Questions to ask about outage behavior

Bring these to any installer, and you'll quickly see who's being straight with you about backup.

Q: Will this system give me any power in an outage?

For plain grid-tied, the honest answer is no. Only a battery (or an off-grid setup) provides backup. If they dodge this question, keep asking until you get a clear yes or no.

Q: If I add a battery, exactly which circuits stay on, and for how long?

You want specifics — named circuits and an honest range, not vague 'whole-home backup.' The answer should reflect your actual must-run list.

Q: Does the switch-over to battery happen automatically?

In a good hybrid system it does, within moments, with no scrambling on your part. Confirm it, so you know what to expect when the lights go out.

★ I'll help you ask the right ones

If you'd like, I'll sit with you before an installer visit and help you prepare exactly the questions that matter for your home. Call (330) 200-8042.

A few outage myths, cleared up

Let's put the most common misunderstandings to rest.

- **'Solar means I'll have power in a blackout.'** Not with a plain grid-tied inverter — it shuts off for safety. You need a battery.
- **'The shut-off is a defect I can disable.'** No — it's required by law to protect line crews. Never bypass it.
- **'A backup outlet is as good as a battery.'** A few inverters offer a tiny sun-only trickle — fine for a phone, not for your home.
- **'If my panels are fine, the outage won't affect them.'** The panels are fine; the inverter shuts down on purpose. A battery is the fix.

None of these means solar is a poor idea — quite the opposite. They just mean it pays to understand your inverter's outage behavior before you buy, so you can decide about a battery with open eyes.

Outage behavior at a glance

Here's the whole story in one small table. Keep it handy.

Your setup	In an outage	Powered by
Grid-tied, no battery	Shuts off	Nothing
Hybrid with battery	Backs up loads	Battery + sun
Daytime backup outlet	Tiny, sun only	A trickle
Battery + generator	Rides it out	Both, in turn

The pattern is clear: without stored power of some kind, an outage means darkness. With a battery — and, for the long haul, a generator — you stay comfortably lit.

Putting it all together

Here's the whole story in one calm summary.

A grid-tied inverter shuts your solar off in an outage, on purpose, so it can never energize lines a crew is repairing. That's anti-islanding, required by safety standards and your utility — not a fault, and never something to bypass. Your panels are fine; the inverter is simply keeping everyone safe.

If you want power during an outage, a hybrid inverter with a battery is the honest answer: it disconnects your home safely, then runs your essentials. Understand that, and you can decide about backup with clear eyes — which is exactly where I want you.

★ Worried about outages?

This is the topic folks most want to talk through, and I'm always glad to. Call or text me at (330) 200-8042 for a plain, honest answer about your home.

Common Questions

The questions I hear most about solar and outages, answered plainly.

Q: Why won't my solar work in a blackout if the sun is shining?

Because a grid-tied inverter must shut off in an outage so it can't energize lines a crew is repairing. It's a required safety feature called anti-islanding — not a fault, and not something to bypass.

Q: Do I have to have a battery to get any outage power?

For practical purposes, yes. A few inverters offer a tiny sun-only backup outlet, but for real backup — the fridge, the pump, the lights — you need a battery or a generator.

Q: Is the shut-off a defect I can fix or disable?

No — and please never try. It's mandated by safety standards and your utility's interconnection agreement to protect line workers. The safe way to get outage power is a battery.

Q: Will my inverter come back on by itself after an outage?

Yes. Once the grid is stable again, your inverter reconnects automatically, often after a short waiting period to be sure the grid is truly back. You don't have to do anything.

★ Still have a worry about outages?

This is the topic folks most want to talk through, and I'm always glad to. Call or text me at (330) 200-8042 for a plain, honest answer about your home.

A simple recap to keep

Tuck this short version in your solar folder.

- ❑ Grid-tied solar shuts off in an outage — on purpose, for safety.
- ❑ It's called anti-islanding; it protects utility line crews.
- ❑ Your panels aren't broken; the inverter is doing its job.
- ❑ A hybrid inverter with a battery is what keeps your essentials on.
- ❑ Never bypass the shut-off or rig your own backup.

✓ You've got the gist

That's the whole outage story. The rest — what to back up and how big a battery — is a design conversation for when you're ready.

Where to go next

A few sibling guides pick up right where this one leaves off.

Our hybrid-inverter guide explains the fix in detail. The adding-batteries guide covers putting backup on an existing system. And our whole-home-solar guides go deeper on batteries, medical backup, and the well pump. Follow whichever answers your next worry.

And any time you'd rather just talk it through with a patient person, that's what I'm here for. There's no wrong question about keeping your power on.

★ Let's make an outage plan

A calm, layered plan beats worry every time. Call or text me at (330) 200-8042 and we'll figure out what makes sense for your home.

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 solar inverters and keeping power during an outage 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.

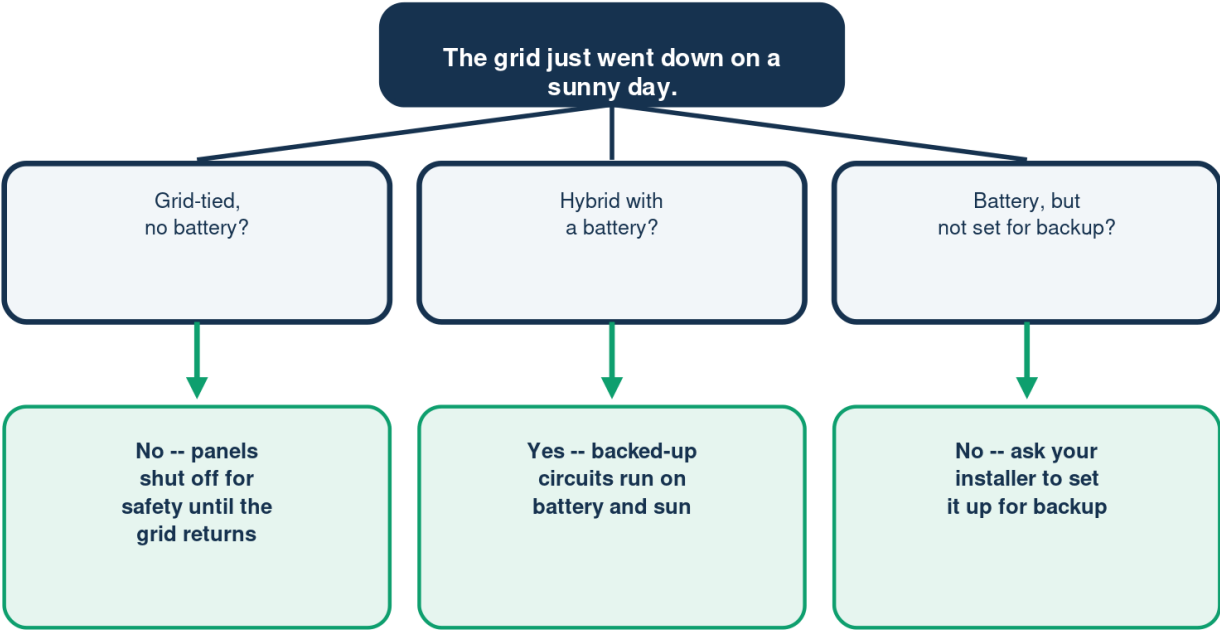
When you'd rather have a hand, that's exactly what I do. I come to your home, work at your pace, and never make you feel rushed or silly for asking. A first visit is a flat \$99, and for the parts that don't need me on-site I can often help right on your screen for \$49. Every visit comes with a 30-day, 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

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Sun's Out, Power's Off -- Will Solar Help?

The answer comes down to one thing: a battery

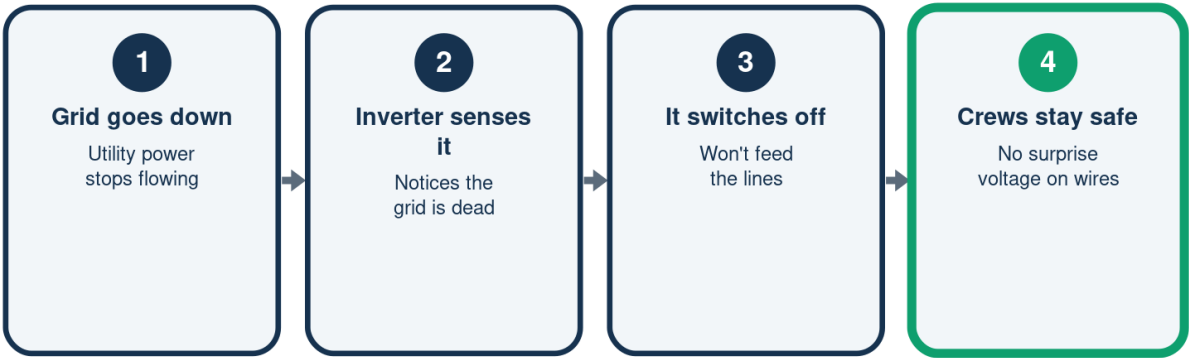


Plain grid-tied solar always powers down in an outage -- by law, for safety.

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

Why Your Inverter Shuts Off in an Outage

Anti-islanding, step by step



A battery adds a safe disconnect so your panels can keep working.

Outage Behavior at a Glance

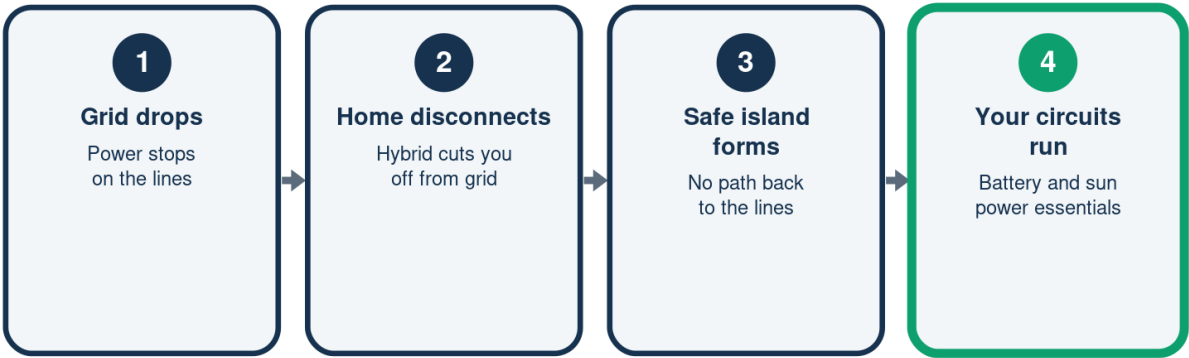
What runs, and what powers it

	In an outage	Powered by
Grid-tied, no battery	Shuts off	Nothing
Hybrid + battery	Backs up loads	Battery + sun
Daytime outlet	Tiny, sun only	A trickle
Battery + generator	Rides it out	Both, in turn

Without stored power, an outage means darkness -- a battery changes that.

How a Battery Makes a Safe Island

Lights on, crews still safe



It's the safe disconnect that lets your panels run when plain solar can't.



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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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