



An Extended Guide · No. 1368

How an Interlock Kit Prevents Backfeed

The forced order that keeps
power from flowing the wrong way

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! Read this first — panel work is a licensed electrician's job

A generator interlock kit is installed inside your home's electrical panel, and panel work is among the most dangerous jobs in any house. The power inside a panel can injure or kill even with the lights off, and a wiring mistake can start a fire or push deadly voltage back onto the lines outside, where a utility crew may be working. Adding an interlock — the sliding plate, the generator breaker, and the inlet it connects to — is a licensed electrician's job, almost always with a permit and an inspection. It is never a do-it-yourself project, and it is never something I do myself. This guide is here to help you understand, choose, and safely use an interlock — not to wire one. And please, never try to shortcut all this by backfeeding a generator through a wall or dryer outlet with a double-ended cord; that shortcut kills people, and an interlock kit is the safe, legal way to do the very thing it tempts you to do. This guide takes the lid off the safety and shows you, step by step, exactly how a simple plate keeps your generator's power from ever reaching the lines outside.

How a plate of steel keeps power from flowing the wrong way

In the first guide we said an interlock makes it impossible to have your main and generator breakers on at once. This guide slows down and shows you why that one rule is what stops the deadly problem called backfeed — in plain, unhurried English.

I'm Bill. When folks really understand how an interlock works, two things happen: they stop being nervous about it, and they never again consider the dangerous shortcut. So let me walk you through the mechanics, gently, the way I would standing at your panel with you.

I'll say it here and mean it every time: this is a look at how the device works, not a how-to for wiring one. Putting an interlock on a panel is a licensed electrician's job, almost always with a permit and an inspection. It's never a do-it-yourself project, and never something I do myself.

★ Want me to explain it a different way?

If any part of this doesn't click, just call or text me at (330) 200-8042 and I'll find the words that do. There's never a charge to ask a question.

The whole mechanism, on one page

If these few ideas stick, you already understand how an interlock protects everyone.

- ❑ Backfeed means your generator's power flowing backward, out of your house and onto the utility lines.
- ❑ Turning your main breaker off disconnects your house from those outside lines completely.
- ❑ The interlock plate is shaped so the generator breaker can only come on after the main breaker is off.
- ❑ So whenever your generator is feeding the house, the house is already cut off from the grid — backfeed can't happen.
- ❑ It's a piece of metal, not a computer — there's nothing to glitch, freeze, or be fooled.
- ❑ That's why it protects the crews on the poles and stops fires when utility power returns.

✓ One sentence to keep

The plate doesn't just discourage backfeed — it makes the unsafe position physically impossible, every single time.

First, what 'backfeed' actually means

You can't appreciate the fix until you can picture the problem, so let's start there.

Normally, power flows from the utility, into your panel, and out to your lights and appliances. Backfeed is that flow running in reverse: a generator pushing power back through the panel and out onto the wires that leave your house. Those wires connect to your neighbors and, through a transformer, to the whole local grid.

When power heads out that way during an outage, it can put voltage on lines that a repair crew believes are dead, and it can clash with the utility's power the moment it returns. Everything an interlock does is aimed at making that reverse flow impossible.

! Backfeed is about direction

The danger isn't the generator itself — it's power leaving your house the wrong way. Stop that reverse flow and you've stopped the danger.

The clever shape of the sliding plate

The whole thing turns on a bit of geometry you can see with your own eyes.

The interlock is a shaped metal plate that sits over your main breaker and the nearby generator breaker. It can rest in one of two spots, and its shape blocks part of the panel in each. In its resting spot, it covers the generator breaker so that breaker simply cannot be pushed on — the metal is in the way.

To free the generator breaker, you slide the plate over. But here's the trick: the plate can only slide once the main breaker has been switched off, because the main breaker's handle is what blocks the plate's path until it's down. No off, no slide. It's all in the shapes, and nothing more.

✓ You can watch it work

This isn't hidden inside a box. Ask your electrician to show you: the plate physically won't budge until the main is off. Seeing it once makes it obvious.

Why the main must go off first

This forced order is the heart of the safety, so it's worth a page of its own.

Because the plate won't slide until the main is off, you are physically required to disconnect from the utility before you can send any generator power into the panel. You don't have to remember to do it in the right order — the interlock won't let you do it in the wrong one. The hardware enforces the good habit for you.

That single requirement is what separates an interlock from a dangerous hookup. With the main off, your house is an island. The generator can power that island all it likes, and none of it can travel back to the grid, because the road to the grid is closed at the main.

! The order is not optional

You cannot energize the generator breaker with the main still on. The plate makes the safe order the only possible order — that's the whole design.

How the main breaker isolates your house

Let's look at exactly what turning off the main does inside your panel.

Your main breaker is the single gate between everything in your house and the utility's wires coming in from outside. When it's on, power flows across that gate. When it's off, the gate is open — a real, physical break in the connection. Nothing electrical can cross a break like that in either direction.

So with the main off and the generator running, your circuits are fed only from the generator, and the outside lines are on the far side of an open gate. The generator's power has nowhere to go but into your own home. That break is what makes everything downstream safe.

✓ Picture an open drawbridge

A main breaker in the off position is like a raised drawbridge. Your house is on one side, the grid on the other, and nothing crosses the gap. The interlock guarantees the bridge is up before the generator runs.

How this protects the people on the poles

This is the danger most folks never picture, and the one the interlock quietly prevents.

When your power is out, line crews are often out working to restore it, handling wires they trust are dead. If generator power were to travel back onto those wires, a transformer can step it up to the high voltage the lines normally carry. A worker touching a wire they believe is safe could be gravely hurt or killed.

An interlock removes that possibility by design. Because your generator can only run with the main off, your power is sealed inside your house and can never reach the crew. You never even have to think about it — the plate has already handled it.

! Your setup reaches beyond your walls

This is why a safe hookup matters even if you'd be careful. The interlock protects strangers you'll never meet, automatically, every time you use it.

How it prevents a fire when the utility comes back

There's a second danger the interlock heads off: the moment your regular power returns.

If a generator and the returning utility power were both connected at once, the two sources would clash. That collision can damage your generator, harm appliances, and overheat wiring in ways that start fires. It's a real risk of a dangerous hookup, and it happens in an instant when the lights come back on their own.

With an interlock, the two can never be connected together, so they can never clash. When utility power returns, you calmly switch the generator breaker off, slide the plate back, and turn the main on — one source at a time, always. No collision, no surprise.

! The clash is what an interlock prevents

Two power sources meeting is what wrecks gear and starts fires. Keeping them apart isn't just tidy — it's the fire protection built into the device.

Two kinds of homes, two sets of needs

The mechanics of preventing backfeed are identical everywhere, but the reason it matters lands a little differently depending on where you live.

If you live in town or the suburbs

In town or the suburbs, your poles and transformers are shared with neighbors close by, and crews are often working just up the street during an outage. A backfeed here can reach those workers quickly — and the interlock's main-off rule is what makes sure it never does.

- Close neighbors share the same transformer, so keeping your power sealed inside your house protects the whole block.
- Crews restoring a suburban line are frequently nearby — the interlock's isolation guards them without you thinking about it.
- Shorter, more common outages mean you'll flip that main off and on often, so a design that enforces the order is a real comfort.
- The furnace and fridge are your usual reasons to feed the panel at all, and the plate keeps that safe.

If you are out in the country on a well

Out in the country on a well, the lines that leave your home may run a long way to reach the next house or the road, and rural crews travel far to work on them. The same open gate at your main breaker keeps your generator's power from ever chasing them down those long lines.

- A well pump is a big, hardwired 240-volt load, so your generator works hard during an outage — all the more reason the isolation must be certain.
- Long rural outages mean many switch-overs, and the interlock enforces the safe order every single time.
- Distant lines and far-flung crews make backfeed's reach a genuine danger — the main-off rule ends it at your gate.
- Our well-pump and using-during-an-outage guides go deeper on the rural routine.

★ Curious how it'd look on your own panel?

Tell me a bit about your setup and whether you're on city water or a well, and I'll help you picture exactly how the isolation works for you. Call (330) 200-8042.

Why 'mechanical' is such good news

A lot of the interlock's trustworthiness comes from what it isn't.

There's no circuit board in an interlock, no sensor, no battery, and no software. It doesn't 'decide' anything or wait for a signal. It's a shaped piece of steel that can only be in one place at a time, and steel doesn't freeze up, lose power, or get confused in a storm.

Electronic gadgets can fail in surprising ways — a glitch, a dead battery, a bad update. A plate has none of those failure points. Its simplicity is exactly why inspectors and electricians trust it: there's almost nothing that can go wrong with a shape.

✓ Simple is a safety feature

In protective gear, boring and mechanical often beats clever and electronic. The fewer moving parts, the fewer ways to fail — and a sliding plate has about as few as you can get.

The deadly shortcut this design replaces

To see the interlock clearly, hold it next to the dangerous thing people sometimes try instead.

Some folks attempt to power a house by running a cord with plugs on both ends from a generator into a wall or dryer outlet. That's backfeeding, and it does the very thing an interlock is built to prevent: it sends power backward with nothing to stop it from reaching the outside lines. It's deadly and it's illegal, and I would never walk you through it.

An interlock reaches the same goal — your house running on a generator — from the opposite direction. Instead of hoping nothing flows backward, it makes backward flow impossible before the generator can even start feeding the panel. Same wish, safe answer. Our dangers-of-backfeeding guide covers the shortcut's risks in full.

! Same goal, opposite safety

Backfeeding leaves the danger open and trusts luck. An interlock closes the danger first and doesn't need luck at all. Please only ever choose the second.

'Can't I just shut the main off myself?'

It's a fair question, and the answer shows what the interlock really adds.

In theory, if a person switched the main off by hand before backfeeding, the grid would be isolated too. But that leans on a human doing the right step, in the right order, every time, in the dark, under stress, with never a slip. And it does nothing about the live prongs on a double-ended cord. It's still dangerous, and still against code.

The interlock takes that same good instinct — 'main off first' — and turns it into a rule made of steel that can't be forgotten or skipped. You get the protection without having to be perfect. That's the whole difference: safety built into the hardware, not resting on your memory.

! Good intentions aren't a safety device

Meaning to shut the main off isn't the same as a plate that won't let you proceed until you have. The interlock removes the chance to get it wrong.

Always one source, never two

Here's the simplest way to hold the whole idea in your head.

At any moment, your house is connected to exactly one power source. When the main is on, that's the utility, and the generator breaker is blocked. When the generator breaker is on, that's the generator, and the main is off. The plate guarantees you can never be on both — and, importantly, it doesn't matter which order the outage and your steps happen in, the rule always holds.

Because it's always one-or-the-other, the two sources have no way to meet, indoors or out. That single fact is what makes the interlock safe for your home, your appliances, and the crews on the lines all at once.

✓ One-or-the-other, every time

If you remember nothing else about the mechanics, remember this: one source at a time, guaranteed by a shape. Everything else follows from it.

What the plate does not do

Understanding its limits is part of understanding it well.

The interlock doesn't sense an outage or switch anything on its own — you do the steps by hand. It adds no power of its own; it's not a generator and not a battery. And it doesn't manage how much you run: it happily lets you turn on more circuits than your generator can feed, so keeping within your generator's capacity is still your job. Our load-management guide makes that easy.

What the plate does, it does perfectly: it keeps the two power sources apart. It's a safe gate, not a brain. You supply the judgment about what to run; the gate supplies the safety.

✓ A gate, not an autopilot

Think of the interlock as a very reliable gate you operate, not a system that runs itself. Knowing that keeps your expectations right.

The safe sequence, so you can see it in motion

You don't need the full operating drill here, but watching the order makes the mechanics real.

With the generator set up and running safely outside and its cord plugged into the inlet, you switch the main breaker off, slide the interlock plate over, and turn the generator breaker on. Now the panel is safely on generator power and you switch on the household circuits you want, one at a time. When utility power returns, you reverse it calmly. Our using-during-an-outage guide lays out every step in large print.

! Read this first — carbon monoxide is the real danger

A running generator's exhaust contains carbon monoxide — an invisible, odorless gas that can kill in minutes. Never run a generator indoors, in a garage, in a shed, or on a porch, not even with the door open and a fan going. Run it outside only, well away from the house — the safety agencies say at least 20 feet — with the exhaust pointed away from every window, door, and vent. Put battery-backup carbon-monoxide alarms on each floor and outside the bedrooms. If an alarm sounds, or anyone feels dizzy, sick, or sleepy, get everyone into fresh air first and ask questions later. The interlock handles the electrical safety inside; running the generator outdoors, well away from the house, is the part you handle — and it matters just as much.

Why 'listed and inspected' seals the deal

The design is sound, and two more things make a real installation trustworthy.

A proper interlock is a listed device — meaning it's a recognized, tested product made for your panel, not a homemade bracket. And because tying a generator into your panel is serious electrical work, most areas require a permit and an inspection. An inspector confirms the plate fits, the generator breaker is right, and everything is done to code.

So the safety isn't only in the shape of the plate — it's in the listed part, the licensed hands that install it, and the second set of expert eyes at inspection. Our permits-and-inspection guide walks through how smooth that process really is.

! Three layers, not one

A good interlock is safe three times over: a sound mechanical design, a licensed electrician, and an inspection. Skipping any layer isn't a bargain — it's a risk.

The worries I hear, gently answered

When folks learn how it works, a few honest questions come up. Here's the calm truth.

Q: Could the plate ever let both breakers on by accident?

No. Its shape physically blocks the generator breaker until the main is off. There's no in-between position where both are on — the metal simply isn't built to allow it.

Q: What if I forget the steps in an outage?

The plate won't let you do them in an unsafe order, and you'll keep a big-print card by the panel. Even a mix-up can't create the dangerous state — that's the beauty of it.

Q: Does it wear out or need power to work?

It needs no power at all, and there's very little to wear. Your electrician checks it during service, but a shaped plate is about as durable as protection gets.

✓ Every worry has a calm answer

The mechanics are simple enough that the reassurances are simple too. If yours isn't here, a quick call will settle it.

Myths about how an interlock works

A few misunderstandings about the mechanics are worth clearing up.

- **'It electronically senses the outage.'** No — there's no electronics at all. It's a hand-operated plate, and you do the steps.
- **'It stops backfeed by shutting off the generator.'** No — it works by keeping you from connecting the generator until the main is off and the grid is isolated.
- **'A shape is too simple to be that safe.'** The simplicity is the safety — a shape can't glitch, and it can't be in two places at once.
- **'Shutting the main off by hand is just as good.'** No — that relies on perfect memory and is still against code; the plate makes it certain.

! The myth worth crushing

The dangerous myth is that any hand method equals a real interlock. It doesn't. Only hardware that makes the unsafe state impossible truly protects everyone.

Common Questions

The questions I hear most about how an interlock prevents backfeed.

Q: How does an interlock kit prevent backfeed?

It's a shaped plate that won't let the generator breaker turn on until the main breaker is off. With the main off, your house is disconnected from the utility lines, so the generator's power has no path back to the grid.

Q: Why does the main breaker have to be off first?

Because the plate can only slide once the main's handle is down. That forces you to isolate your house from the grid before any generator power reaches the panel — the safe order becomes the only order.

Q: Does turning off the main really cut me off from the grid?

Yes. The main breaker is the one gate between your house and the outside lines. Off means a real, physical break — nothing electrical can cross it in either direction.

Q: Is this safer than just shutting off my main and backfeeding?

Far safer, and it's the legal way. Backfeeding still relies on perfect human memory, leaves live prongs exposed, and is against code. An interlock builds the protection into the hardware.

★ Still turning it over in your mind?

Call or text (330) 200-8042 anytime. I'll happily walk through the mechanics until it feels obvious — there's no such thing as a silly question.

My honest take

After explaining this at a lot of panels, here's how I've come to feel about it.

What I love about an interlock is that its safety is something you can see and understand. There's no mystery box you have to trust on faith — it's a plate, it's a shape, and once you watch it refuse to slide with the main on, you get it in your bones. That understanding is worth as much as the device itself.

It also turns the one danger people worry about — backfeed — into something the hardware simply won't allow. You don't have to be an expert or have a perfect memory. You just have to follow a short order the plate insists on anyway. That's a kind of safety I'm always glad to recommend.

★ Let's look at your panel together

If you'd like, I'll come see your setup and show you exactly how the isolation would work in your home — no pressure, nothing to sell. Call or text (330) 200-8042.

The short version to carry with you

If the details blur, these are the ones that matter.

- ❑ Backfeed is power flowing backward out of your house onto the utility lines — that's the danger.
- ❑ Turning the main off puts a real break between your house and the grid, so nothing can flow back.
- ❑ The plate won't let the generator breaker on until the main is off, so the safe order is guaranteed.
- ❑ It's mechanical, listed, and inspected — and it's the safe, legal answer to backfeeding.

✓ Keep this guide handy

This is the 'how it works' guide. When you're ready to size, choose, or operate one, the rest of the series is waiting for you.

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 understanding how an interlock kit prevents backfeed 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.

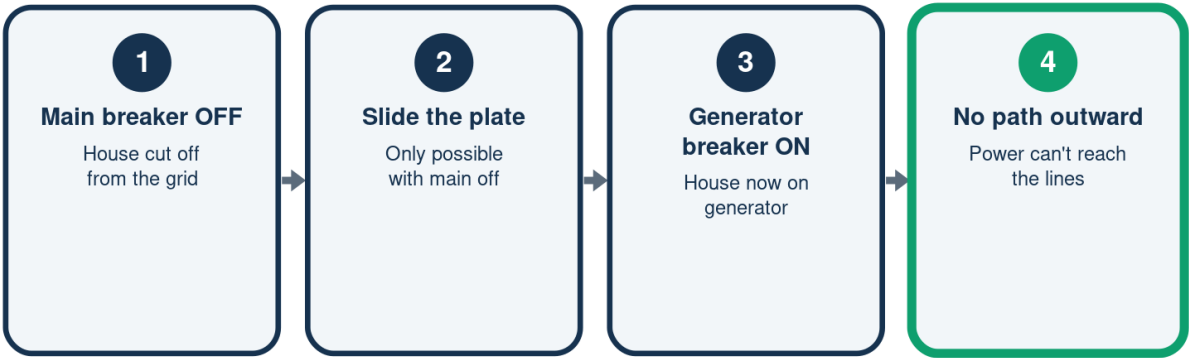
When you'd rather have a hand, that's exactly what I do. I come to your home, work at your pace, and never make you feel rushed or silly for asking. A first visit is a flat \$99, and for the parts that don't need me on-site I can often help right on your screen for \$49. Every visit comes with a 30-day,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

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How It Blocks Backfeed

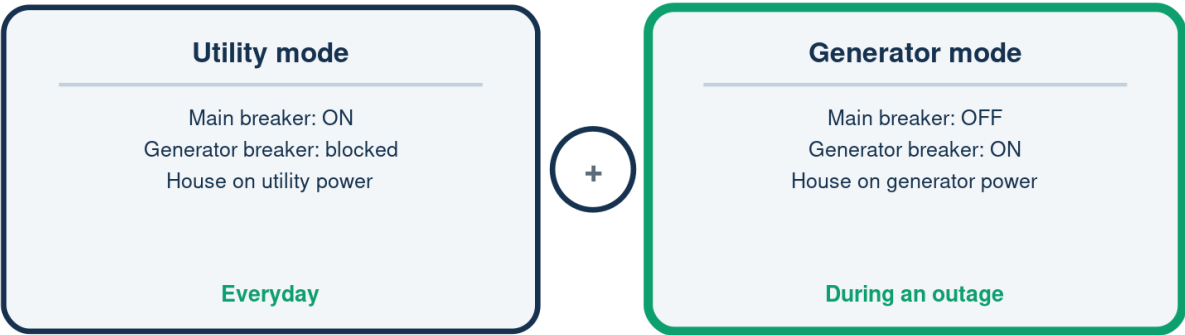
The forced order that seals your house off



With the main off first, the generator's power stays inside.

One Plate, Two Positions

The generator breaker only frees up with the main off



Never both at once -- the shape won't allow it.

No electronics -- a steel shape does all the safety work.

Interlock vs. Backfeeding

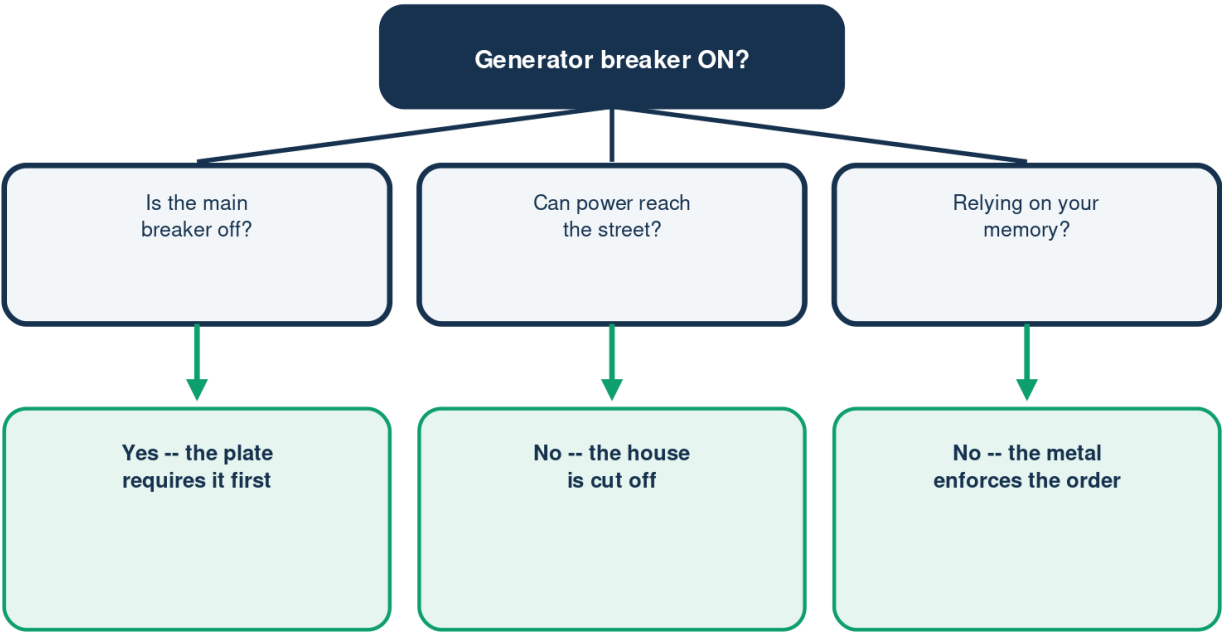
Same goal, opposite safety

	Interlock kit	Backfeeding
Grid isolated?	Yes -- main off	Only if you recall
Enforced by	A steel plate	Human memory
Safe for crews?	Yes, always	Can kill them
Legal?	Yes, inspected	No, illegal

An interlock makes the danger impossible -- it doesn't just hope.

Why 'Main Off First' Matters

What the plate guarantees before power flows



Safety built into the hardware, not resting on a perfect memory.

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



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A Note From Bill

A quick note from Bill.

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