



An Extended Guide · No. 1229

Keeping the Heat On in an Outage

Running your furnace or
boiler on a generator

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! 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. Heat brings its own version of that same rule — the furnace can only run safely on a generator that stays outdoors too, and an unvented heater has no business running indoors, cold snap or not.

Let's keep the heat on, safely

A furnace or boiler doesn't need nearly as much power as people assume — it's the blower or the circulator pump doing the work, not an electric heating element. This guide walks through backing up that part safely, and being honest about the one big exception: electric heat.

I'm Bill, and I run Bill's Home Tech here in Portage County, Ohio. When a customer worries their generator won't run the furnace, the good news is usually on my side — most furnaces ask for a lot less than people fear. The part that trips folks up is that it's wired in, not something you can just plug a cord into.

We'll cover what your furnace actually needs, why it calls for a proper electrician-installed hookup, and the honest truth about electric heat, which is a different story entirely. And we'll talk about staying safe and warm while you sort it all out.

★ Not sure what kind of heat you have?

If you're not sure whether your furnace runs on gas, oil, or electricity, that's a great first question to call me with. Reach me at (330) 200-8042 and we'll figure it out together.

The whole guide, on one page

If you remember only these things, you're most of the way to keeping the heat on safely.

- ❑ A gas or oil furnace or boiler mostly needs power for its blower or circulator pump and controls — not to make the heat itself.
- ❑ That still means it's hardwired — it needs a transfer switch or interlock, not a cord.
- ❑ The blower's fan motor has its own starting surge, just like a fridge — size for it.
- ❑ Electric furnaces, heat pumps, and electric baseboard heat with electricity itself, and often draw far more than a portable generator can comfortably supply.
- ❑ Never run the generator, or any unvented fuel-burning heater, indoors — the carbon-monoxide risk doesn't take a night off for cold weather.
- ❑ Test the whole setup on a mild day, before the first real cold snap.

! Be honest about electric heat

If your home heats with electricity, don't assume a typical portable generator can carry it — that's the one exception in this whole guide worth taking seriously before you buy anything.

What your furnace actually needs from the generator

Here's some reassurance to start with: a gas or oil furnace doesn't make its heat from electricity at all.

The actual heat comes from burning gas or oil. Electricity's job is smaller: running the blower fan that pushes warm air through your ducts, the igniter or pilot control, and the control board that ties it all together. That's a genuinely modest electrical job compared to, say, running an electric water heater or central air.

That's good news for sizing — your furnace is rarely the single biggest thing on a must-run list. It's more often the well pump, if you have one, or a window air conditioner in summer. But 'modest' doesn't mean 'nothing,' and there's still a surge to plan for, which we'll get to shortly.

✓ The furnace is often easier than people fear

If you've been dreading the furnace as the hardest part of your generator plan, take a breath — for most gas and oil systems, it's one of the more manageable loads, not the hardest one.

It's hardwired — not a cord job

Even though the electrical need is modest, a furnace is wired directly into your home's electrical panel, the same as a well pump or central air.

There's no plug to find behind the furnace and no outlet to run a cord to. It's spliced into a circuit at your panel, which means the only safe way to feed it from a generator is a transfer switch or an interlock kit, installed by a licensed electrician.

This is the same hookup that covers your other hardwired loads, so if you're already planning one for a well pump or central air, your furnace very likely rides along on the same circuit plan. Our guide on connecting a generator covers choosing between a transfer switch and an interlock in full detail — we won't repeat all of it here.

! No cords, no backfeeding

Don't try to power a furnace with an extension cord, and never use a double-ended 'suicide cord' to backfeed it through an outlet. Both are unsafe and neither actually works for a hardwired appliance.

The blower's starting surge

The blower fan is a motor, and like any motor, it needs a bigger jolt of power to start spinning than it needs once it's running.

That starting surge is brief — a second or two — but your generator has to be able to deliver it the instant the furnace calls for heat, or the blower may hum, struggle, or fail to start. This is exactly the running-versus-starting-watts idea our sizing guide walks through, just applied to your furnace specifically.

The honest way to plan for it: add the blower's running watts to everything else on your must-run list, then make sure your generator's starting-watt rating comfortably clears the biggest single surge on that list, whether that turns out to be the blower or something else, like a fridge or a pump.

✓ One motor, one surge to plan for

You don't add the blower's surge on top of every other motor's surge — just the single largest one on your list. Our sizing guide explains why in more detail if the idea is new to you.

Boilers are similar, with a twist

If your home heats with a boiler instead of a furnace, the electrical picture is a close cousin — with a pump instead of a fan.

A gas or oil boiler heats water or makes steam using its burner, then relies on one or more circulator pumps to push hot water through your radiators or baseboard, plus the same kind of igniter and control board a furnace has. Like the blower fan, a circulator pump is a motor with its own starting surge.

A boiler with multiple heating zones may have more than one circulator pump, each with its own small surge. It's still a modest total electrical job compared to the boiler's actual heat output, which comes from burning fuel, not from electricity.

✓ Ask your HVAC technician about zones

If you have a multi-zone boiler system, your heating technician can tell you how many circulator pumps you have and whether they run together or in sequence — useful detail before you finalize your sizing.

What each part actually needs

A quick reference for the pieces that make up your heating system's electrical load.

Part	What it needs
Blower fan (furnace)	A motor with its own starting surge
Circulator pump(s) (boiler)	Same idea — a motor, a surge each
Igniter or pilot control	A small, steady draw
Control board / thermostat	A very small, steady draw

None of these individually asks for much. It's the blower's or the pump's starting surge, not the steady running total, that decides how much headroom your generator needs.

The big exception — electric heat

Everything above assumes a gas or oil system. If your home heats with electricity, the story changes completely, and I want to be honest with you about it.

An electric furnace, a heat pump, or electric baseboard heat doesn't just use electricity to run a fan or a pump — it uses electricity to actually make the heat. That takes a great deal more power than moving warm air or water around, and it's often more than a typical portable generator can comfortably supply alongside anything else.

This isn't a reason to panic, but it is a reason to plan differently. Don't assume the same portable generator that would handle a gas furnace's blower can also carry electric heat — that's one of the most common and understandable mis-assumptions I run into.

! Be honest with yourself here

If you have electric heat, treat that as its own conversation, separate from a typical gas-furnace setup. Sizing for it, if it's even practical with a portable unit, deserves real, careful numbers — not a hopeful guess.

If you have electric heat, here's the honest picture

Let's talk through what your realistic options actually look like.

A portable generator sized for electric heat, on top of everything else in the house, often has to be quite large — and even then, running full electric heat plus the rest of your must-run list may simply be more than a portable can comfortably deliver. Some households instead focus a portable generator on everything except full-house heat: lights, the fridge, chargers, and perhaps a single, safely used space heater in one room.

For a home that truly wants generator-backed whole-house heat and has electric heat, a permanent, larger standby generator is often the more realistic answer than a portable. That's a bigger conversation, and I'm glad to have it honestly with you rather than sell you a portable that will leave you disappointed.

★ Let's talk it through honestly

If you have electric heat, call or text me at (330) 200-8042 before you buy anything. I'd rather tell you the truth up front than have you find out the hard way during an outage.

Two kinds of homes, two sets of needs

Heating backup looks a little different depending on where you live and what fuel warms your home.

If you live in town or the suburbs

In town or the suburbs, a gas furnace tied to the municipal gas line is common, and outages tend to be shorter. The furnace's electrical need — the blower and controls — is usually a modest, manageable piece of a smaller must-run list.

- A natural gas furnace keeps making heat from the gas line even when the power's out — it just needs its blower and controls backed up.
- Shorter, more common outages mean a modest fuel plan for the generator itself is often enough.
- If you have electric heat in town, the same honest caution about sizing still applies — see the page on electric heat.
- Our guide on connecting a generator covers the transfer switch or interlock your furnace will share with other hardwired loads.

If you are out in the country on a well

Out in the country, propane or oil furnaces and boilers are common, fuel deliveries can be delayed by the same storm that caused the outage, and outages themselves often run longer.

- A propane or oil furnace needs its own fuel supply tended separately from the generator's fuel — don't let either one run low unnoticed.
- Longer outages call for a generator fuel plan measured in days, not hours — see our fuel-storage guide.
- If a well pump is also on your list, it likely outweighs the furnace as the biggest single surge — see our well-pump guide.
- Rural homes on electric heat face the sizing honesty on the previous pages especially sharply — worth a careful conversation before you buy.

★ Whichever kind of home you're in

Tell me your furnace or boiler type, your fuel, and what else is on your list, and I'll help you build an honest, right-sized plan. Call (330) 200-8042.

Thermostats and zones

A couple of smaller details round out the electrical picture, worth knowing even though neither is a big deal.

Your thermostat itself, whether an old-fashioned dial or a modern smart model, draws a very small, steady amount of power — not worth a second thought in your sizing. If it's battery-powered, it may not even need generator power to keep working.

A multi-zone system, where different parts of the house are controlled separately, may have a few extra zone valves or dampers, each drawing a small amount of power to open and close. Individually tiny, but worth mentioning to your HVAC technician or electrician so nothing gets forgotten.

✓ When in doubt, ask your HVAC technician

Your furnace or boiler technician knows your specific system's parts better than any general guide can. A quick question during your next service visit can fill in any blanks.

Never run the generator — or an unvented heater — indoors

Cold weather does not change the carbon-monoxide rule. If anything, it's when people are most tempted to break it, and most at risk if they do.

Running a generator in a garage, shed, breezeway, or basement to keep it out of the cold, even with a door cracked, is exactly how people are hurt every winter. The generator still goes outside, still well away from the house, with the exhaust still pointed away from every window, door, and vent — covered in full in our carbon monoxide guide.

The same rule applies to unvented fuel-burning heaters — like an indoor propane or kerosene heater without a proper flue — which have no business running inside a closed-up house either. They consume the same oxygen and produce the same invisible, dangerous gas.

! Cold is uncomfortable. Carbon monoxide is deadly.

No amount of cold weather justifies moving a generator or an unvented heater indoors, into a garage, or onto an enclosed porch. Bundle up, use a safely placed space heater instead, and keep the generator outside, every time.

If you lean on a space heater, do it with care

While you're sorting out the furnace, an electric space heater can bridge the gap in one room — but it deserves its own caution.

Use only an electric space heater with a tip-over shutoff, plugged directly into an outlet or a proper heavy-duty cord, never a lightweight extension cord or a power strip. Keep it at least a few feet from anything flammable — bedding, curtains, furniture — and never leave it running unattended or while you sleep.

Remember, too, that a space heater draws a steady, resistive load — no motor, no surge — but it can still be a meaningful chunk of your generator's capacity. Account for it on your must-run list rather than treating it as an afterthought.

! Never a fuel-burning or unvented heater indoors

A space heater in this context means electric, plugged in, and listed for indoor use. A propane, kerosene, or other unvented fuel-burning heater indoors carries the same carbon-monoxide danger as running the generator itself inside — never do it.

Keeping warm while you sort it all out

Even with a good plan, there may be a gap between when the power goes out and when everything is up and running. A few low-tech habits help a lot.

- Close off rooms you're not using, and gather in one smaller, easier-to-heat space.
- Layer blankets and warm clothing — it sounds simple because it works.
- Keep exterior doors closed as briefly as possible, and use a rolled towel to block drafts underneath.
- Check on family members, neighbors, and pets who may need extra help staying warm.

★ A calm plan beats a cold scramble

Knowing ahead of time what you'll do in that gap — which room, which blankets, who you'll check on — turns a stressful evening into a manageable one. I'm happy to help you think it through before you ever need it.

Setting up the hookup with an electrician

Whatever your heat source, the electrical side of this plan runs through the same licensed-electrician doorway as any other hardwired load.

A transfer switch or interlock kit installed at your panel is what lets your generator safely feed the furnace or boiler's circuit, along with anything else you've chosen to wire in. That installation, and usually a permit, is a licensed electrician's job — not mine, and not a do-it-yourself project.

What I do is help you get ready for that visit: understanding what your furnace or boiler actually needs, sizing the generator sensibly, and making sure the right questions get asked. Then I coordinate a trustworthy local electrician to do the wiring itself.

★ I'll help line up the electrician

Coordinating a licensed electrician for the panel work is part of what I do. Once you know your heating system and your must-run list, call or text me at (330) 200-8042 and I'll help you plan the whole hookup.

Sizing with the furnace on your list

Bringing it back to the number: here's how the furnace fits into the sizing method you may already know from our sizing guide.

Add up the running watts of your whole must-run list, including the furnace's blower or the boiler's circulator pump, then add the single biggest starting surge on that list — which may be the furnace, or may be a fridge or a well pump if one is also on your list — and finish with a comfortable cushion.

For most gas and oil systems, the furnace itself won't be the number that determines your size class. It's a real number to include, but rarely the dominant one, unless your home also leans on electric heat, in which case the previous pages' honesty applies.

✓ Bring your whole list, not just the furnace

Sizing works best looking at everything together, not one appliance in isolation. If you'd rather talk through your whole must-run list than do the math alone, call or text me at (330) 200-8042.

Common furnace-backup mistakes

A handful of avoidable slip-ups account for most furnace-backup regret. Now you'll know them in advance.

- **Assuming the furnace needs almost no planning** because 'it's just a fan,' then forgetting its starting surge.
- **Assuming electric heat behaves like gas or oil heat** and sizing a portable generator that can't actually carry it.
- **Trying to power a hardwired furnace with cords** instead of a transfer switch or interlock.
- **Running the generator in a garage or breezeway** to keep it out of the cold — the carbon-monoxide rule doesn't pause for winter.
- **Using an unvented fuel-burning heater indoors** as a stopgap, which carries the same danger as an indoor generator.
- **Never testing the setup** until the first real cold snap, when there's no time to fix a surprise.

! The indoor-heater mistake is the dangerous one

Every other mistake here costs comfort or money. Running a generator or an unvented heater indoors to escape the cold can cost a life. Keep both outside, always.

Testing it before the first cold snap

Just like the well pump, the furnace deserves a real test on a mild day, not its first real workout during a genuine cold snap.

Start the generator, engage the transfer switch or interlock, and let the furnace or boiler run through a full heating cycle. Listen for the blower or circulator pump starting smoothly, and confirm warm air or heat actually reaches the rooms it should.

This is also a good moment to exercise the generator itself under a real load, which keeps the engine healthy and the fuel fresh — and it means you'll already know the whole system works before you're relying on it in genuinely cold weather.

★ Let's test it together before winter

A test run in decent weather, with me there or on the phone, beats finding out something's wrong during the first real cold night. Call or text me at (330) 200-8042 to set it up.

Questions to ask your HVAC technician or electrician

These questions get you a plan that actually matches your specific furnace or boiler.

Q: Is my furnace gas, oil, or electric?

If you're not sure, your HVAC technician can confirm at a glance, and it changes this whole conversation — ask before you size anything.

Q: What's the starting surge on my blower or circulator pump?

Many furnace and boiler nameplates list this, or your technician can help you find it — our sizing guide covers reading a nameplate in general.

Q: Will the transfer switch or interlock cover my furnace along with my other hardwired loads?

Usually yes, on the same panel-level hookup — confirm with your electrician when you're planning the circuits it will cover.

Q: If I have electric heat, is a portable generator even the right tool?

Sometimes, for a partial plan; sometimes a standby generator is the more realistic answer. An honest conversation with an electrician or with me is worth having before you buy.

✓ There's no silly question

Heating systems have their own quirks, zone by zone and home by home. Asking a specific question about your specific system beats guessing from a general rule.

Common Questions

The furnace-backup questions I hear most often, answered plainly.

Q: Will my generator have to work hard to run the furnace?

For most gas and oil furnaces, no — the blower and controls are a modest load. The starting surge is the one moment that asks more, briefly.

Q: Can I just run a heavy-duty cord to my furnace instead of a transfer switch?

No — a furnace is hardwired into your panel with no plug to reach. It needs a transfer switch or interlock installed by a licensed electrician.

Q: Is it ever okay to run a generator in the garage with the door open in winter?

No. An open garage door does not make it safe — carbon monoxide can still build up to dangerous levels. The generator stays outside, well away from the house, no exceptions.

Q: What if I have electric heat and can't afford a whole-house standby generator?

Focus a portable generator on your true essentials — fridge, lights, chargers — and use a safely placed electric space heater in one room, rather than trying to force whole-house electric heat onto a portable.

★ Still sorting out your heat?

Furnace and boiler backup is one of the more nuanced parts of generator planning, and I'd rather walk you through it honestly than have you guess. Call or text me at (330) 200-8042.

Bringing it all together

For most gas and oil systems, backing up the heat is more manageable than people fear — a modest electrical load, a real but single starting surge, and a proper electrician-installed hookup.

Size for the blower or circulator pump's surge alongside the rest of your must-run list using our sizing guide's method, have a licensed electrician add the furnace to your transfer switch or interlock — our guide on connecting a generator covers that hookup in full — and never let the cold tempt you into running anything indoors that belongs outside; our carbon monoxide guide is worth a full read if you haven't already.

And if your home heats with electricity, treat that as its own honest conversation rather than assuming a portable generator can simply carry it the same way.

★ Let's plan your heat, honestly

Whether it's a straightforward gas furnace or a harder conversation about electric heat, I'd rather give you the honest picture than a hopeful guess. Call or text me at (330) 200-8042.

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 keeping the heat on in 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 do the licensed electrical or gas work myself — for that I'll help you line up a trustworthy local pro.

★ 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 Kind of Heat Are You Backing Up?

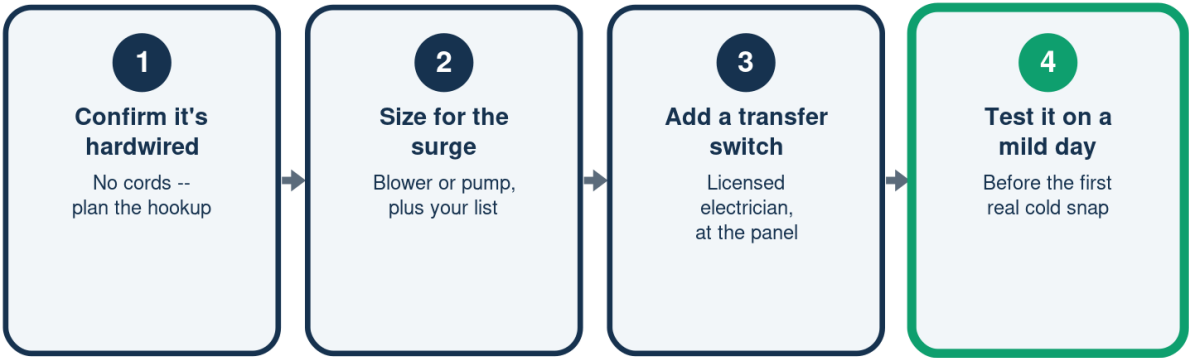
The fuel and the mechanism both matter

	Electrical need	Generator fit
Gas/oil furnace	Blower + controls only	A modest, doable load
Gas/oil boiler	Circulator pump(s)	Also modest, doable
Electric furnace	Heats with electricity	Often too much for a portable
Heat pump / baseboard	Heats with electricity	Same honest caution

Know which kind you have before you size anything.

Backing Up Your Furnace, Step by Step

The calm way to plan it, before the cold arrives



Do these in order and the first cold night holds no surprises.

Cords vs. a Transfer Switch, for a Furnace

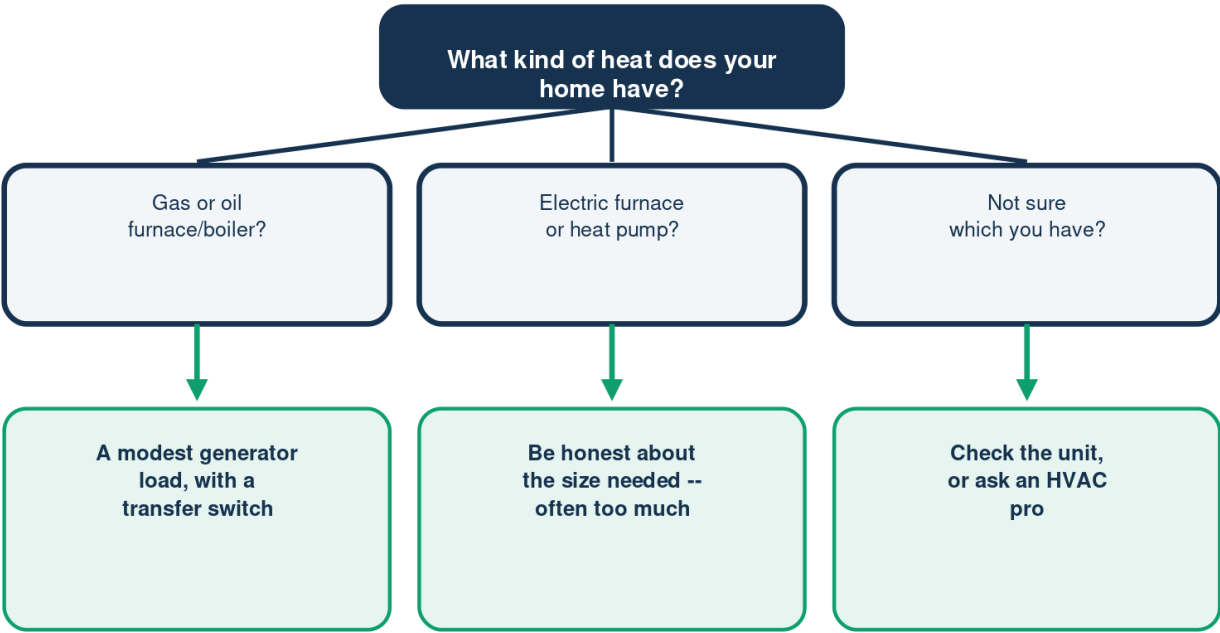
Only one of these is ever the right answer

	Works for a furnace?	Why
Outdoor extension cord	No	Furnace is hardwired
Transfer switch / interlock	Yes	Electrician-installed link
Space heater as a stopgap	Only with care	Electric, never unvented

Whatever your heat source, it still needs a transfer switch, not a cord.

What's Your Heating Situation?

Let your heat source point the way



Whatever the heat source, it still needs an electrician's transfer switch, not a cord.

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



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— Bill

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Bill can screen-share and fix many things remotely — a flat \$49, free for Support Plan members.



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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