



An Extended Guide · No. 1267

Dual-Fuel & Tri-Fuel Generators, Explained Simply

What they are, how they work,
and why the fuel matters

Tech Made Simple — Service Made Personal

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! Before you begin — a quick safety note.

This guide covers work involving engine exhaust, fuel, and household electricity, which can cause serious injury, fire, or property damage if something goes wrong. It's here for general information only, not professional advice. If you're not completely comfortable — or if your local codes require a licensed pro — please stop and hire a qualified electrician or generator installer. Turn off the power at the breaker before any electrical step. Never work on gas lines yourself; if you smell gas, leave right away and call your gas company or 911. There's no shame in calling a pro — that's often the smart, safe choice. You follow this guide at your own risk. — Bill

A Note From Bill

If you're thinking about a backup generator — or you already have one and it still feels like a mystery — you're in exactly the right place. A “dual-fuel” or “tri-fuel” generator sounds fancy, but the idea behind it is simple, and by the end of this guide it'll feel that way to you too.

I wrote this the way I'd explain it sitting at your kitchen table: no jargon, no rushing, and no assuming you already know the lingo. Read a page, set it down, come back tomorrow. It'll wait for you.

What you'll get out of this guide

- What “dual-fuel” and “tri-fuel” really mean, in plain words
- The three fuels — gasoline, propane, natural gas — and when each shines
- How much of your home a generator can realistically keep going
- The one safety rule that matters more than all the others
- The safe way to connect one to your house (and the dangerous way to avoid)
- Special notes for town homes and for country homes on well water

★ You don't have to become an expert

That's my job. This guide is here so the whole thing feels friendly instead of frightening. And if you'd rather just hand it off, I'm a phone call away at (330) 200-8042.

The Whole Idea in One Page

If you read only one page today, make it this one. Everything else is just the friendly details underneath these few ideas.

- ❑ A dual-fuel generator runs on gasoline OR propane. A tri-fuel adds natural gas. You pick one fuel before you start — you don't mix them.
- ❑ More fuel choices means more peace of mind: if you can't get one fuel in an outage, you reach for another.
- ❑ It makes the most power on gasoline, a little less on propane, and a little less again on natural gas. Plan around the fuel you'll actually use.
- ❑ Run it OUTSIDE ONLY, far from the house. The exhaust has carbon monoxide, which is invisible, has no smell, and can kill. This is the rule that matters most.
- ❑ Never plug a generator into a wall outlet. To power the house, use a transfer switch or interlock put in by an electrician — or run proper extension cords to what you need.

✓ Two things worth writing down

The safe spot outside where your generator goes, and my number — Bill's Home Tech, (330) 200-8042. Between this guide and a phone call, you're covered.

“Dual-Fuel” and “Tri-Fuel,” Plainly

These are really just names for how many kinds of fuel one generator can burn. Nothing more complicated than that.

The word	What it means
Dual-fuel	One generator that runs on two fuels: gasoline or propane. You choose which one before starting.
Tri-fuel	The same idea with a third option added: gasoline, propane, or the natural gas piped to your home.
Propane (LP)	The fuel in those tanks you use for a gas grill, and in bigger tanks some homes keep in the yard.
Natural gas (NG)	The gas piped to a home for the furnace, stove, or water heater — if your home has it.

The key thing: you run on **one fuel at a time**. There's a selector — a knob or a valve — that you set to the fuel you want, and you set it before you start the engine, not while it's running.

★ **If your home has no gas line**

Plenty of country homes and even some in town don't have natural gas piped in. That's perfectly fine — a dual-fuel (gasoline and propane) generator is the natural choice, and propane is a wonderful fuel to keep on hand. More on that later.

How a Generator Turns Fuel Into Power

Under the hood it's the same simple story as a lawn mower or a car, just aimed at making electricity instead of motion. Here it is in one breath.

Follow the power

- You pick a **fuel** and start the **engine** — a small motor, much like the one on a mower.
- The engine spins a part called the **alternator**, and that's what actually makes the **electricity**.
- That electricity comes out at the **outlets** on the generator, ready for your cords — or, if you're set up for it, out to your home's circuits.

A dual- or tri-fuel generator adds just one wrinkle to that story: a **fuel selector** that lets the same engine sip from gasoline, propane, or natural gas. Set the selector, start it up, and the rest is identical no matter which fuel you chose. There's a simple picture of this on the “At a Glance” page just ahead.

✓ Why this matters to you

Because everything runs through that one engine, the fuel you feed it is the biggest decision you make. Get comfortable with the three fuels and you've mastered the heart of the whole subject.

Why Two or Three Fuels Beats One

A generator is only as useful as the fuel you can put in it when the lights go out. That's the real reason dual- and tri-fuel units have become so popular.

- **Gas pumps need power too.** In a wide outage, the station down the road may be dark. If gasoline is your only fuel, you can be stuck.
- **Propane waits patiently.** A propane tank in the garage or yard is ready for years, with no going stale. In an outage you already have fuel on hand.
- **Natural gas just keeps coming.** If your home has it and the gas system is working, you never refuel at all — it flows through the pipe.
- **Options mean calm.** When one fuel is short, you reach for another instead of worrying.

You don't have to use all the fuels. Many folks keep a little fresh gasoline for quick jobs, lean on propane for outages, and — if they have a gas line — love the hands-off feel of natural gas. The point is that the choice is yours, storm by storm.

★ My honest take

For most homes around here, the propane option is the quiet hero. It stores for years, it's easy to keep a spare tank, and it starts nicely. Gasoline is handy but fussy to store; natural gas is lovely if you have the line for it.

The Three Fuels, Side by Side

Each fuel has a personality. None is “best” for everyone — the right one depends on your home and what you can reliably get. Here's the honest rundown.

Fuel	The good	The catch
Gasoline	Most power; easy to find day to day; simple to pour in.	Goes stale in months; hard to store safely in quantity; pumps may be down in an outage.
Propane	Stores for years; clean-burning; easy to keep spare tanks.	A little less power than gasoline; can be sluggish in deep cold (fixable).
Natural gas	Never refuel; cleanest; unlimited while the pipe flows.	Least power; needs a professional hookup; useless if the gas line is disrupted.

Notice there's no villain here — just trade-offs. A dual- or tri-fuel generator lets you enjoy the strengths of more than one and lean on whichever fits the moment. The “At a Glance” page has this same comparison as a simple picture.

! About that power difference

The big wattage number on any generator's box is almost always its gasoline rating. On propane it's typically a little lower, and lower still on natural gas. If propane or gas is your outage plan, size for that — there's a whole page on sizing coming up.

What a Generator Can (and Can't) Do

A backup generator isn't meant to run your whole house exactly as normal. It's meant to keep the **important** things going comfortably until the power returns.

What most people keep running

- The **refrigerator and freezer**, so food doesn't spoil.
- A **furnace blower** or boiler, so the heat stays on in winter.
- A few **lights**, and your **phone, internet, and TV** for news.
- **Medical devices** like a CPAP or oxygen machine — these come first.
- A **well pump or sump pump**, so water keeps flowing or the basement stays dry.

The trick is not trying to run everything at once. You keep the essentials going and take turns with the big power-hungry items — running the microwave for a few minutes, then back to the fridge and furnace. It's easier than it sounds, and there's a whole guide in this series on running your essentials.

✓ Think in “what matters most”

Before an outage, jot down the handful of things you truly want kept on. That short list — not the whole house — is what your generator is really for.

Two Shapes: Portable and Standby

Dual- and tri-fuel generators come in two broad shapes. Knowing the difference helps you picture what you're shopping for or already own.

Type	What it's like
Portable	A unit on wheels you roll outside, start yourself, and connect with cords or through an inlet. You store the fuel. Most dual/tri-fuel units are these.
Standby	A permanent unit installed outside like an air conditioner. It starts itself when the power fails and usually runs on natural gas or a big propane tank.

Most folks reading this are looking at a **portable** dual- or tri-fuel generator — flexible, affordable, and moveable. Standby units are wonderful but are a bigger, professionally installed project. There's a separate guide in this series comparing the two in detail.

★ **Not sure which you have or want?**

That's a great thing to sort out together. I can look at your home, your budget, and what you want kept running, and point you to the right shape without any sales pressure.

If You Live in Town or the Suburbs

City and suburban outages tend to be shorter, homes are closer together, and many have natural gas at the street. That shapes what makes sense for you.

What usually matters most here

- **Keeping it neighborly.** Homes are close, so a quieter unit (an inverter model) and a tucked-away safe spot keep the peace. It still must be outdoors and far from windows — yours and your neighbors'.
- **Natural gas may be an option.** If you have a gas line, a tri-fuel unit can tap it for hands-off, no-refuel power — a professional hookup, but very convenient.
- **Shorter outages.** Often you're covering a few hours to a day, so a modest unit and a couple of propane tanks go a long way.
- **Sump pump season.** Many town basements rely on a sump pump. Keeping it running in a storm can save you from a flooded basement.

A common town setup is a mid-size dual- or tri-fuel unit, a safe spot on the patio or driveway well away from the house, and either a pair of propane tanks or a natural-gas hookup. That quietly covers the fridge, furnace, a few lights, and the sump pump.

✓ Apartment or condo?

If you rent or share walls, a generator usually isn't practical or permitted. A better fit is often a battery power station for phones, a lamp, and a medical device. I'm glad to help you weigh that.

If You're Rural or on a Well

Out in the country, outages can last longer, help is farther away, and — this is the big one — if you're on a well, no power means no running water. A generator isn't a luxury here; it's peace of mind.

What usually matters most here

- **The well pump.** When the power's out, your well pump stops, and so does water for drinking, cooking, and flushing. Backing it up is often the whole reason to own a generator.
- **Well pumps need a strong start.** Most are 240-volt and take a big surge of power to start up. That means a generator with enough **starting** power and 240-volt capability — there's a dedicated guide on this.
- **Longer outages favor propane.** No gas line at the road usually means propane is your friend — a big yard tank or several cylinders keep you going for days.
- **Plan for more load.** Well pump, freezer, furnace, maybe a barn or outbuilding — rural homes often ask more of a generator.

A typical country setup is a larger dual-fuel unit (gasoline and propane) with 240-volt outlets, connected through a transfer switch or interlock so it can run the well pump and furnace, with a good propane supply on hand. That keeps water flowing and the house warm through a long Ohio outage.

★ Well-pump backup is worth doing right

Getting a generator sized for that starting surge, and safely wired to the pump, is exactly the kind of job I help country customers with. Water is the thing you miss first — let's make sure you never have to worry about it.

Sizing, Without the Math Headache

“How big a generator do I need?” is the question I hear most. You don't need to be an engineer — you just need to think in two numbers.

The two numbers that matter

- **Running watts** — the steady power something uses while it's on. You add up the running watts of everything you want on at the same time.
- **Starting watts** — the extra jolt a motor needs for a second or two when it first kicks on (fridge, pump, furnace). You allow for the biggest single jolt on top of your running total.

So the recipe is: add up the running watts of your essentials, then add the largest starting surge among them. Pick a generator whose running **and** starting ratings comfortably clear that — remembering it makes a bit less on propane or natural gas. There's a whole guide in this series that walks it through with a simple worksheet.

! Don't size to the headline number

If propane is your real plan, size against the propane rating, not the bigger gasoline one. A generator that's a touch too big is fine; one that's too small will trip and frustrate you.

The One Rule That Matters Most

Everything else in this guide is about getting the most from your generator. This page is about coming home to your family safe. Please read it twice.

A running generator gives off **carbon monoxide** — often just called CO. It is **invisible**, it has **no smell**, and breathing it can make you pass out or worse before you ever realize anything is wrong. Every year it takes about a hundred lives, and nearly always it was preventable.

The rules, plainly

- Run the generator **outdoors only** — at least **20 feet** from the house.
- Point the **exhaust away** from doors, windows, and vents — yours and the neighbors'.
- **Never** run it in a garage, basement, shed, crawlspace, or carport — not even with the door wide open. A cracked door is not enough.
- Put **carbon-monoxide alarms** with battery backup on every floor and near the bedrooms. Test them.
- If an alarm sounds or anyone feels dizzy, headachy, or sick, **get everyone outside into fresh air right away** and call 911.

! Newer generators can help

Many recent models have a built-in CO sensor that shuts the engine off if CO builds up. It's a fine safety net — but it never replaces putting the generator far outside in the first place.

A Safe Spot, Every Time

Picking one good spot outdoors — and using it every single time — takes the guesswork out of running your generator safely.

What makes a good spot

- On **dry, level ground**, well away from the house — 20 feet or more — with exhaust aimed away from any window, door, or vent.
- **Not** under a deck, in a breezeway, or against the house where fumes can pool.
- **Out of the rain and snow.** Never run it in standing water. If weather's bad, use a proper open-sided generator cover made for the job — never a closed box or tarp wrapped tight.
- Where you can reach it safely with a flashlight, without crossing an icy slope.

Mark the spot in your mind now, while it's calm and light out. When a storm hits and you're tired and it's dark, having a known, safe place to set the generator is a real comfort — and a real safeguard.

✓ Keep it from walking

Generators can vibrate and creep. Set it on firm, level ground so it stays put, and give it room on all sides to breathe and cool.

Handling Fuel Without Worry

Each fuel has a few simple safety habits. None are hard — they're just worth doing the same careful way every time.

Fuel	The habit that keeps you safe
Gasoline	Store only in approved cans, cool and ventilated, away from living space and any flame or spark. Let a hot engine cool before refueling — never pour gasoline near a running or hot generator.
Propane	Store cylinders outdoors , upright, away from heat — never in the house or a hot car. Check the hose and connection for leaks with soapy water.
Natural gas	The hookup is a licensed pro's job. Once it's in, there's nothing to store — but know where your gas shutoff is, just in case.

! If you ever smell gas

Propane and natural gas have a rotten-egg smell added on purpose. If you smell it, don't flip switches or light anything — get away from the area and call your gas company or 911 from a safe distance. There's a whole guide on safe gas handling and leaks.

★ When in doubt, keep it simple

Many customers keep it easy: a couple of fresh, stabilized gas cans for quick use and a few propane tanks for outages. I'm happy to help you set up a safe little fuel plan for your home.

Getting the Power Where You Want It

There are two safe ways to use a portable generator, and one dangerous way you must never use. Let's make the safe choices clear.

The two safe ways

- **Extension cords.** The simplest method: run heavy-duty, outdoor-rated cords from the generator to the few things you want powered — the fridge, a lamp, a space heater. Great for smaller needs.
- **Transfer switch or interlock.** For powering your home's built-in circuits — furnace, well pump, whole rooms — an electrician installs a transfer switch or a listed interlock kit with an outdoor inlet. You plug in one cord and flip a switch.

! Never backfeed a wall outlet

Plugging a generator into a regular wall outlet to “power the house” is deadly. It can send power back out to the street and **electrocute a lineworker**, and it can start a fire. There is never a good reason to do it — use a transfer switch or interlock instead.

★ This is a job for a pro — and I can help

A transfer switch or interlock has to be installed by a licensed electrician to be safe and to the code. I can help you plan it, coordinate it, and make sure it powers exactly what you want when the time comes.

The Everyday Start-Up Routine

Every model is a little different, so your own manual is the final word — but almost all portable generators follow the same friendly rhythm.

A typical start

- Set it up in your safe outdoor spot, exhaust pointed away from the house.
- Choose your **fuel** on the selector — before starting, not after.
- With nothing plugged in yet, start the engine (a pull cord, a key, or a button). Use the **choke** for a cold start if your model has one, then ease it off as it warms.
- Let it settle for a minute, then plug in your cords or flip your transfer switch.
- Add your loads a **few at a time** — biggest motor first — rather than all at once.

To shut down, do the reverse: unplug or switch off your loads first, let the engine run free for a minute to cool, then stop it. Turning the load off before you stop the engine is gentle on both the generator and your gadgets.

✓ Find your model's manual

Look on the generator for the brand and model, then search that plus the word “manual” online, or ask me. Ten minutes with the manual once saves a lot of guessing later.

Simple Upkeep So It Starts When You Need It

The saddest call I get is a generator that won't start in an outage — almost always from sitting neglected. A few easy habits prevent it.

- **Run it once a month** for a little while, with something plugged in. This keeps it limber and, on electric-start models, keeps the battery charged.
- **Change the oil** as your manual says — usually once early on when it's new, then on a regular schedule after. Clean oil is the cheapest insurance there is.
- **Keep gasoline fresh.** Old gas gums up the works. Use fuel stabilizer, and don't let gasoline sit for months. Propane and natural gas sidestep this entirely — they don't go stale.
- **Check the air filter and spark plug** now and then, per the manual.

★ An easy yearly once-over

Once a year I'm glad to stop by, run it, change the oil, check it over, and make sure it'll fire up the moment you need it. Think of it like an oil change for your peace of mind.

Ohio Winters and Your Generator

Our outages love to arrive with ice and wind. A little cold-weather know-how keeps your generator happy when you need it most.

- **Propane slows down in deep cold.** Propane has to boil off to feed the engine, and that slows as the temperature drops. A small tank may not keep up with a big load on a bitter night.
- **Bigger, fuller tanks help.** A larger propane tank kept fairly full holds its pressure better in the cold than a nearly-empty little one.
- **Keep it clear.** Brush snow away, keep the exhaust and vents clear, and never let it get buried — it still needs to breathe and stay dry.
- **Gasoline and cold.** Fresh, stabilized gasoline starts better; a cold, stale tank is a recipe for a no-start.

There's a whole guide in this series just on cold-weather propane, because it's such a common Ohio question. The short version: plan for a bigger tank and keep it fuller in winter, and you'll be fine.

✓ Warm hands, safe habits

It's tempting to bring a generator or a propane tank into the garage “just to keep it warm.” Please don't — the carbon-monoxide and fuel dangers aren't worth it. Keep everything outside and use the cold-weather tips instead.

If You're Shopping for One

You don't need to know every spec on the box. A handful of things tell you most of what you need, and there's a full shopper's checklist elsewhere in this series.

- **The fuels it takes.** Dual-fuel (gas + propane) suits most homes; add tri-fuel if you have a natural-gas line you'd like to use.
- **Enough power on your fuel.** Check the running and starting watts — on the fuel you'll actually use — against your essentials.
- **240-volt outlet** if you have a well pump or want a transfer switch/interlock.
- **A built-in CO safety shutoff**, electric start if pull-starting is hard on you, and wheels if you'll move it.
- **Warranty and support** — a known brand with parts and help available beats a mystery bargain.

★ Bring me the tab before you buy

Send me a link or a photo of one you're considering and I'll give you my honest read — whether it fits your home, your fuel, and what you want to keep running. No commission, no sales pitch, just a straight answer.

When to Give Me a Call

You can learn all of this yourself — that's what the guide is for. But some parts are simply easier and safer to hand off, and I'm always glad to help.

- Choosing the right size and fuel for your home and budget.
- Setting up a safe way to power the house — planning a transfer switch or interlock with a licensed electrician.
- Backing up a well pump, with its big starting surge and 240-volt needs.
- Connecting to a propane or natural-gas supply the safe, proper way.
- A yearly check-up so it starts the moment the lights go out.
- Walking your whole family through the carbon-monoxide and fuel-safety basics.

I come to you, here in Portage County and nearby, and I explain everything in plain language at whatever pace suits you. No question is too small, and I'll never make you feel silly for asking.

★ Bill's Home Tech

Call or text (330) 200-8042. Tech Made Simple, Service Made Personal. Every visit is \$99 flat and 30-day come-back-free — if you're not happy, I'll make it right.

Everyday Cheat Sheet

Dog-ear this page or copy it onto a card. It's the quick answer to the things that come up most.

I want to...	Remember this
Run it safely	Outdoors only, 20+ feet from the house, exhaust pointed away. Never in a garage or shed.
Pick a fuel	Set the selector before starting. Gasoline = most power; propane = best for storage; natural gas = hands-off.
Power the house	Transfer switch or interlock (by an electrician), or heavy-duty cords. Never a wall outlet.
Size it right	Add running watts, add the biggest starting surge, and size for the fuel you'll use.
Keep it ready	Run it monthly, change the oil on schedule, keep gasoline fresh.
Stay safe from CO	CO alarms on every floor; if one sounds, everyone outside and call 911.
Get help	Call Bill: (330) 200-8042.

Words People Use

A few terms you may hear around generators, in everyday language. No quiz at the end.

Q: Dual-fuel / Tri-fuel

A generator that runs on two fuels (gasoline or propane) or three (adding natural gas). You pick one at a time.

Q: Propane (LP)

The bottled gas used for grills and in larger home tanks. Stores for years and is a favorite for outages.

Q: Natural gas (NG)

The gas piped into some homes for the furnace or stove. Never needs refueling, but needs a professional hookup.

Q: Running watts

The steady power a device uses while it's on. You add these up for everything you want running at once.

Q: Starting watts

The extra burst a motor needs for a moment when it first turns on — fridges, pumps, and furnaces all do this.

Q: Transfer switch / Interlock

The safe, electrician-installed way to feed your home's circuits from a generator without any danger of backfeeding the street.

Q: Carbon monoxide (CO)

The invisible, odorless gas in engine exhaust that can kill. The reason a generator must always run far outdoors.

Q: Inverter generator

A quieter type that makes especially clean, steady power — gentle on TVs, computers, and medical devices.

The Three Fuels at a Glance

None is best for everyone — it's about your home

	Gasoline	Propane	Natural Gas
Where it comes from	Gas station	Tanks you keep	Piped to home
Storing it	Goes stale	Stores for years	Nothing to store
Power	Most	A little less	Least
Best for	Quick use	Outages	Hands-off

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

How It Makes Your Power

The same story no matter which fuel you choose

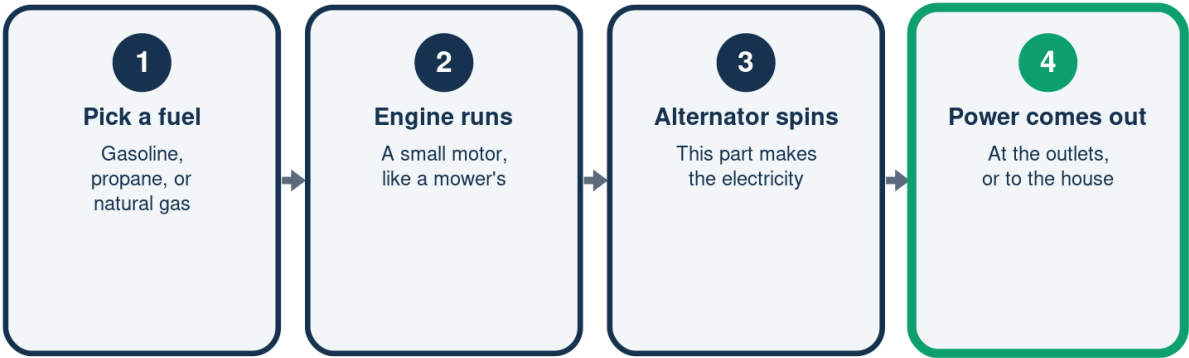
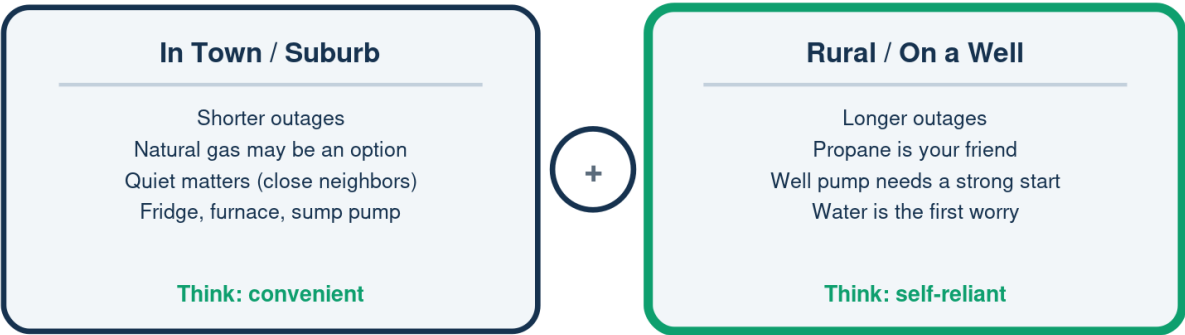


Illustration - a schematic, not to scale. Your setup may differ.

Town Home vs. Country Home

What each usually needs most

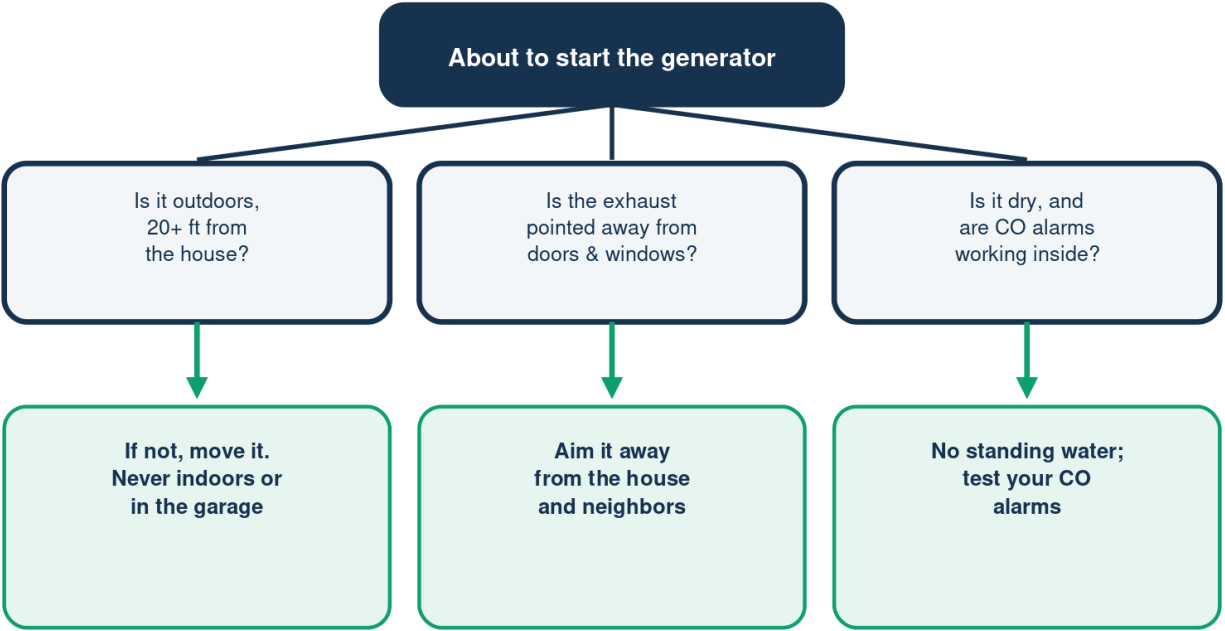


Same generator — different priorities

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

Is It Safe to Run Right Now?

Three quick checks before you start — every single time



If a CO alarm ever sounds: everyone outside to fresh air, then call 911.

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



Need a Real Person?

You do not have to remember all of it.
You just have to remember you can call.
Friendly, in-home tech help — I come to you.

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If you are not 100% happy with a visit, I will
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— Bill

Prefer help without a visit?

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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