



An Extended Guide · No. 1237

Refueling Safely and Planning Your Runtime

Never run dry at the worst moment

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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. Refueling is also the moment people are most tempted to duck into the garage 'just for a minute' — don't. Every refuel happens outside, with the generator off and fully cooled, every single time.

Let's keep you fueled up, and never caught short

A generator that runs out of fuel at the wrong moment is a headache. A generator refueled carelessly is a real fire risk. This guide covers both — the firm rules for refueling safely, and the plain-English way to plan your fuel so you're never running on fumes when it matters most.

I'm Bill, and I run Bill's Home Tech here in Portage County, Ohio. Refueling feels like the simplest part of owning a generator, and mostly it is — but it's also where a moment of impatience meets gasoline, and that's a combination worth respecting.

The good news is the safety rules are short and firm, and the runtime planning is mostly common sense once someone walks you through it. We'll cover both in the pages ahead.

★ Bring me your outage habits

Tell me how you actually run your generator — what you power, and for how long — and I'll help you build a fuel plan that fits your real outages, not a worst-case guess. Call or text (330) 200-8042.

The whole guide, on one page

If you remember only these things, you're already refueling and planning safely.

- ❑ Turn it off and let it fully cool before you ever add fuel — spilled gas on a hot engine can ignite.
- ❑ Refuel outdoors only, away from any flame, spark, or lit cigarette.
- ❑ Don't fill to the very brim — leave room for the fuel to expand.
- ❑ Wipe up spills right away and let them dry before you restart.
- ❑ Keep fuel containers a safe distance from the running unit, capped when you're not actively pouring.
- ❑ Lighter loads stretch your fuel further, especially on an inverter — plan fuel for the outage you expect, plus a modest, safely stored reserve.

✓ One habit prevents most trouble

If you take nothing else from this guide, take this: off, cool, outside. Every time, no exceptions, no matter how confident you feel in the moment.

The one rule that isn't negotiable

Everything else in this guide has some nuance. This page doesn't.

A running or recently-run generator has a hot engine and a hot muffler, and gasoline gives off vapor that can ignite from something as small as a spark or a hot surface — it doesn't need an open flame. Spill a little fuel while refueling a hot unit, and that vapor has everything it needs to catch.

So the rule is simple and absolute: shut the generator off, and let it cool fully before you add any fuel. Not 'off but still warm.' Not 'I'll be quick about it.' Fully off, fully cooled, every single time.

! The fire-safety rule of the whole guide

More than anything else about owning a generator, this is the habit worth making automatic. A generator that's off and cool takes an extra few minutes to refuel. A fire takes a lot more than a few minutes to recover from.

How long is 'cool enough,' really?

There's no shortcut here, but there is a simple way to check.

Your manual may give guidance specific to your model, and that guidance wins if it's more cautious than anything here. As a general rule, give it real time — not a quick pause, but long enough that the engine and the muffler area are no longer hot when you carefully check from a safe distance, never touching the exhaust itself while it could still be hot.

If you're not sure, wait longer. There's no prize for refueling quickly, and a few extra minutes costs you nothing next to the alternative.

✓ Plan ahead so you're not tempted to rush

If you know roughly how long your tank lasts under your typical load, you can plan a refuel before you're down to fumes — which means you're never refueling under pressure. More on that later in this guide.

Refuel outdoors, every time — no exceptions

This should sound familiar — it's the same outdoor rule that protects you from carbon monoxide, doing double duty for fire safety too.

- No smoking, and no one else nearby smoking, while fuel is out and open.
- No open flame, lit pilot light, or running vehicle nearby.
- Refuel in the open air, not in a garage, shed, or carport — even with the door open.
- If it's windy or raining hard, that's a reason to be more careful with the pour, not a reason to move indoors.

! The garage is not a shortcut

Ducking into the garage 'just for a minute' to refuel out of the weather puts you back in an enclosed space with fuel vapor and, if the generator was just running, lingering exhaust. Stay outside for this, the same as everything else.

Don't overfill the tank

Filling to the very top feels thorough. It's actually the wrong move.

Gasoline expands slightly as it warms, and a tank filled all the way to the brim has nowhere for that expansion to go — which means it can weep or overflow once the engine's running and things warm up again. Fill to the marked line your manufacturer built into the tank or filler neck, not to the point where you can't fit another drop.

✓ The line is there on purpose

If your tank has a marked fill line or a screen in the filler neck, that's your manufacturer telling you exactly where to stop. Trust it over your own eyeballing.

Wipe spills, every time

A little splash while pouring is common. What you do about it next is what matters.

- Wipe up any spill immediately, before you do anything else.
- Let the area fully air-dry and the smell clear before you start the engine.
- Move a fuel-soaked rag or paper towel well away from the generator, and dispose of it properly rather than leaving it in a pile nearby.
- If you smell gasoline anywhere near the unit, don't start it yet — find the source first.

! Don't start it if you can still smell fuel

A lingering gasoline smell means vapor is still around, and vapor is what ignites, not the liquid itself. Wait until the smell is gone before you reach for the start switch.

Keep fuel containers away from the running unit

The can you just poured from doesn't belong sitting next to a running engine.

A running generator's engine and muffler stay warm, and a fuel container — even capped — sitting close by adds risk for no good reason. Once you've finished pouring, cap the container fully and move it a real distance away before you restart the generator.

This page is about the moment of refueling itself. For the fuller picture on approved containers, how much fuel to keep on hand, and where it should live between outages, our fuel-storage guide covers that in depth — this page just covers keeping it safe while you're actively using it.

✓ Stage it, don't park it

Bring the container over only when you're ready to pour, and walk it back to its storage spot right after. A fuel can doesn't need to keep the generator company while it runs.

A simple refueling routine, start to finish

Put the last several pages together and it looks like this.

- ❑ Shut the generator off.
- ❑ Let it cool fully — check from a safe distance, not by touching anything hot.
- ❑ Move to your outdoor refueling spot, away from any flame or spark.
- ❑ Fill to the marked line, not the brim.
- ❑ Wipe any spill and let it fully air-dry.
- ❑ Cap the container and move it a safe distance away.
- ❑ Confirm you can't smell fuel before restarting.

★ Practice it once while it's calm

Walking through this routine on an ordinary afternoon, before you actually need it, is time well spent. It turns a list into a habit.

Two kinds of homes, two sets of needs

The refueling rules never change — but how much fuel you plan for, and how you get more of it, looks different depending on where you live.

If you live in town or the suburbs

In town or a close-in suburb, outages tend to run shorter, and a gas station is usually a short drive away once roads clear.

- A more modest stored reserve often covers the outages you're actually likely to see.
- Refueling logistics are simpler — you're rarely more than a short trip from more fuel if you truly run low.
- Our fuel-storage guide can help you right-size a reserve that doesn't overcrowd a garage or shed.
- Shorter, more predictable outages make it easier to plan a refuel during daylight rather than in the dark.

If you are out in the country on a well

Out in the country, outages often run longer, and the nearest open station may be a genuine drive, especially if the outage is widespread.

- Plan a larger stored reserve than an in-town home would need, and rotate it just as faithfully — our fuel-storage guide walks through how.
- Cycling loads to stretch your fuel matters more here, since a mid-outage supply run may not be realistic for a day or more.
- If a well pump is on your must-run list, budget its fuel use separately in your head — it's often the single biggest draw on your tank.
- A flashlight and a steady hand matter for after-dark refueling — plan to top off before dusk when you can.

★ Let's right-size your fuel plan

Tell me how long your outages typically run and how far you are from an open station, and I'll help you figure out a sensible amount of fuel to plan around — not too little, not a hazard to store. Call (330) 200-8042.

Runtime depends on load, not just the size of the tank

The same tank of fuel can last very different amounts of time, depending on what you're asking the generator to do.

Load level	What it typically means
Light load (fridge, lights, phone charging)	Runs noticeably longer per tank
Heavier load (furnace blower, several things at once)	Burns through fuel faster
An inverter throttled down under a light load	Often the most fuel-stretching combination

Our inverter guide covers why that throttling happens, and our sizing guide walks through building the kind of must-run list that tells you roughly how hard you'll actually be working the generator.

✓ **Don't assume — check your manual**

Many manuals list an estimated runtime at a couple of different load levels. Use that as a starting point for your own planning, not a promise — your actual mileage depends on your specific setup.

Planning fuel for the outage you expect

The goal isn't a stockpile — it's enough for a realistic outage, plus a little cushion.

Think about how long outages actually tend to run where you live — your own history, or a call to your utility, is a better guide than worst-case imagination. Plan your fuel around that expected length, running at the load level you'd actually use, plus a modest reserve for the outage that runs a bit longer than usual.

Where and how to store that reserve safely — containers, shelf life, rotation — is covered in full in our fuel-storage guide. This page is about the planning side: how much you'll likely need, not how to keep it fresh.

✓ A little and fresh beats a lot and forgotten

A generously-sized but neglected fuel stash does you no good if it's gone stale by the time you need it. Plan realistically, then rotate what you keep.

Cycling loads to stretch your fuel

You don't have to run everything at once to keep everything fed.

Taking turns with your loads — running the fridge for a while, then switching to the freezer, then the furnace blower — uses meaningfully less fuel over the course of a day than trying to power all of it continuously. Our guide on protecting your fridge and freezer explains why cycling between them works: both hold their cold for hours with the door shut, even with the power off in between.

The same idea applies more broadly. Ask what genuinely needs power right this hour, run that, and rotate to the next priority rather than defaulting to 'everything, all the time.'

✓ Make a simple rotation, not a complicated schedule

You don't need a spreadsheet. A mental loop — fridge, then charging, then the furnace for a stretch — is enough to meaningfully stretch a tank of fuel.

Turn it off before connecting or disconnecting big loads

This one's quick, and it's worth doing out of habit.

Plugging in or unplugging a large appliance while the generator is running under load can cause a rough moment at the connection — a small spark or a strain that's simply avoidable. Shutting the generator off first, making your connection changes, and then restarting is the safer, gentler habit.

This matters most with heavier loads and with any panel hookup — our connecting-to-house and transfer-switch guides cover the specific step-by-step for those setups. Here, the point is just the general habit: power down before you rearrange what's plugged in.

✓ It protects the generator too

Beyond the safety angle, switching loads with the engine off is gentler on the generator itself — one more small habit that helps it last.

Don't wait until it's nearly empty to think about the next fill-up

The best time to plan your next refuel is well before the tank forces the issue.

A fuel gauge, or an hour meter if your model has one, is there to be checked, not just glanced at when you're already worried. Get in the habit of checking it at a natural pause — when you're already outside, when you're cycling loads — rather than waiting for a sputter to tell you it's time.

✓ Refuel in daylight when you can

Topping off proactively, while there's still daylight and no urgency, is a far more pleasant experience than doing it by flashlight because the engine just died.

If it runs dry anyway

It happens to almost everyone eventually — here's what to expect, calmly.

Most generators simply stop running when they run out of fuel; it's not a dramatic or dangerous moment on its own. But remember: an engine that was just running is a hot engine, whether it stopped because you shut it off or because the fuel ran out. The same off-and-cool rule applies before you refuel it — there's no shortcut just because it stopped on its own.

Running a generator completely dry on a regular basis isn't ideal for the fuel system either. Treat an empty tank as a sign to plan ahead better next time, not as a routine way to operate.

✓ It's an inconvenience, not an emergency

If it stops from running dry, take a breath, let it cool, and refuel it the same careful way you always would. No need to panic.

Common mistakes people make

A handful of avoidable habits account for most of the refueling trouble I hear about.

- **Refueling while it's still running or still hot**, just to save a trip back outside later.
- **Topping off to the very brim** instead of stopping at the marked line.
- **Leaving a full fuel can sitting right next to the running generator** for convenience.
- **Running everything at once** instead of cycling loads, and burning through fuel far faster than necessary.
- **Waiting until the tank's nearly empty** to think about the next fill-up, then refueling in a rush, after dark, under stress.

! The one that actually matters most

Every mistake on this page costs convenience or fuel. Refueling a hot engine risks a fire. If you only fix one habit from this page, make it that one.

A simple refueling and runtime checklist

Walk through this before the next outage, not during it.

- ☐ I always shut the generator off and let it cool fully before refueling.
- ☐ I refuel outdoors only, away from any flame or spark.
- ☐ I fill to the marked line, wipe spills, and let the smell clear before restarting.
- ☐ I keep fuel containers a safe distance from the running unit.
- ☐ I have a rough sense of my runtime at the loads I'd actually run.
- ☐ I've planned fuel for the outage I expect, plus a modest, safely stored reserve.
- ☐ I cycle loads rather than running everything continuously.

✓ A page worth keeping handy

Keep this near wherever you store the generator, so it's there the next time you need a refresher, not just today.

Bringing it all together

Refueling safely and planning your runtime are really two halves of the same habit: respect the fuel, and don't let yourself get caught short.

The refueling rules are short and firm: off, cool, outdoors, wipe spills, don't overfill. The runtime side is mostly planning — know roughly how long your tank lasts at the loads you'd actually run, plan for the outage you expect plus a modest reserve, and cycle loads to stretch what you have.

For the fuller picture on storing that reserve, see our fuel-storage guide; for building your must-run list and understanding load in the first place, our sizing guide; and for how an inverter's throttling stretches fuel even further, our inverter guide rounds out the picture.

★ I'll help you build the whole plan

Tell me your typical outage and what you'd want running, and I'll help you land on a fuel plan and a refueling routine that actually fits your life. Call or text (330) 200-8042.

Questions to ask yourself before the next outage

A few honest questions now save a scramble later.

Q: Do I actually know how long my generator runs on a tank at my typical load?

If not, that's worth finding out on a calm day — run it under a normal load and time it once, or check your manual's estimate.

Q: Where exactly will I set fuel containers down while I'm refueling?

Pick the spot now, somewhere outdoors and a real distance from where the generator runs, so you're not deciding in the dark during an actual outage.

Q: How will I tell if it's cool enough to refuel?

Give it real time and check carefully from a safe distance — never touch the muffler area to test it. When in doubt, wait longer.

Q: What's my plan if I genuinely run low on fuel mid-outage?

This is where knowing your area matters — do you have a modest reserve, a way to get more, or loads you can cut back on? Decide before you need the answer.

✓ There's no silly question

Fuel and fire safety are exactly the kind of thing worth over-asking about, not under-asking. Call me if you want to think it through out loud.

Common Questions

The refueling and runtime questions I hear most often, answered plainly.

Q: How long do I really need to wait before refueling?

Long enough that the engine and muffler area are genuinely cool, not just 'not running.'
There's no shortcut — when in doubt, wait longer.

Q: Can I keep a spare fuel can right next to the generator for convenience?

No — keep it capped and a safe distance away, bringing it close only when you're actively pouring. Our fuel-storage guide covers where it should live the rest of the time.

Q: Does a bigger tank mean I don't need to think about runtime?

A bigger tank helps, but load still matters more than tank size for how long you'll actually run — a light load on any generator stretches fuel further than a heavy one.

Q: What's the single biggest mistake you see with refueling?

Refueling while it's still warm, to save a few minutes. It's the one habit on this whole topic that can turn into a genuine emergency, and it's entirely avoidable.

★ Still want a second opinion?

Fuel planning is one of those things that's easy to get roughly right and satisfying to get exactly right. Call or text me at (330) 200-8042 and let's dial yours in.

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 refueling safely and planning your runtime 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.

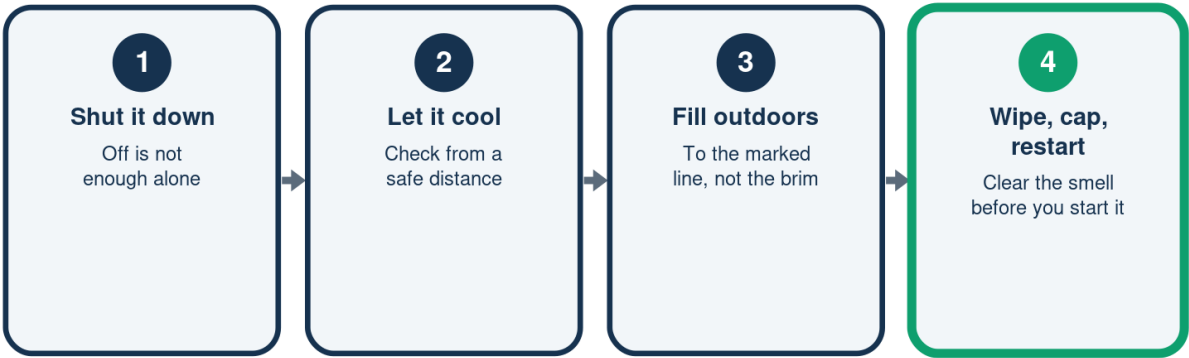
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A Safe Refueling Routine

The same four steps, every single time



Do these in order, every time you refuel.

Load Level and Runtime

The same tank, very different mileage

	Lighter load	Heavier load
Runtime per tank	Stretches further	Burns faster
Engine effort	Coasts easy	Works harder
Best fit	Fridge, lights, phones	Furnace + more at once

Lighter loads and an inverter's throttling both stretch a tank.

Do This -- Never That

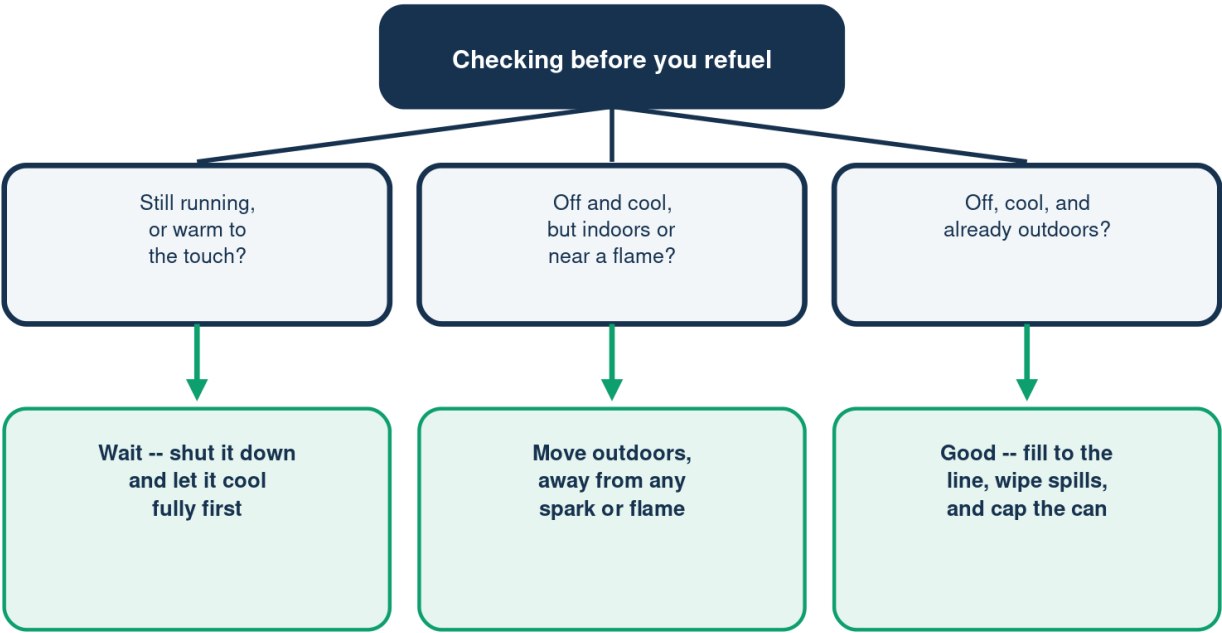
The difference is mostly timing and location

	Do this	Never this
Engine state	Off and fully cool	Running or still hot
Location	Outdoors, open air	Near flame or indoors
Fill level	To the marked line	Filled to the brim
Nearby containers	Capped, a safe distance	Left beside the running unit

One firm rule covers most of it: off, cool, outdoors.

Is It Safe to Refuel Right Now?

Check before you pour



Smell fuel after refueling? Don't start it -- let it air out first.

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



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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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