



An Extended Guide · No. 1272

Sizing a Dual-Fuel Generator: Running Watts vs. Starting Watts

The two numbers that
tell you the size

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! Before you begin — a quick safety note.

This guide covers work involving household electricity and engine exhaust, 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. 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

“How big a generator do I need?” is the question I hear more than any other — and I get why it feels intimidating. It sounds like it needs spreadsheets and an engineering degree. It doesn't.

It really comes down to two numbers and a few minutes with a pencil. That's the whole guide. Read a page, set it down, come back later — there's no rush and no test at the end.

What you'll get out of this guide

- The two numbers that actually decide what size generator you need
- A simple worksheet you can fill out yourself, with your own numbers
- Where to find those numbers instead of guessing at them
- Why the fuel you plan to use changes the size you should buy
- Notes for town homes and for homes leaning on a well pump

★ You don't have to get it perfect

A little extra room in your sizing is a good thing, not a failure. If you'd rather just hand this off, I'm a phone call away at (330) 200-8042.

The Whole Idea in One Page

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

- ❑ Running watts is the steady power something uses once it's going. Add up the running watts of everything you want on at the same time.
- ❑ Starting watts is the extra jolt a motor needs for a second or two when it first kicks on. Add just the single biggest jolt on top of your running total — not every jolt, just the biggest one.
- ❑ That total is your target number. Pick a generator whose running AND starting watts comfortably clear it.
- ❑ If propane or natural gas is your real plan, size against that fuel's rating, not the bigger gasoline number printed on the box.
- ❑ When you're unsure, a little too big beats a little too small. Undersized means tripped breakers and a frustrating night.

✓ Keep a pencil handy

Jot your numbers down as you go. A five-minute worksheet today saves a lot of guesswork later — and I'm glad to check your math if you want a second set of eyes.

Running Watts and Starting Watts, Plainly

Nearly everything in this guide boils down to these two numbers. Get comfortable with them and the rest falls into place.

The number	What it means
Running watts	The steady electricity something uses once it's up and running — a lamp, a phone charger, a fridge that's already humming along.
Starting watts	A short burst, often just a second or two, that a motor needs to get moving from a dead stop. Once it's spinning, it settles back down to its running watts.

Not everything has a big starting jolt. Lamps, chargers, and most electronics don't. Anything with a **motor** — a fridge compressor, a pump, a furnace blower, an air conditioner — does.

✓ **Motors are the trick**

If it spins, pumps, or compresses, plan on a starting jolt. If it just glows or heats steadily, its running watts are usually the whole story.

Why Starting Watts Catches People Off Guard

Think of a stalled car. It takes a real shove to get it rolling, but once it's moving, keeping it going is easy. A motor works the same way.

The usual suspects for a big starting jolt

- A **fridge or freezer** compressor kicking on
- A **well or sump pump** motor starting from a dead stop
- A **furnace or boiler blower** firing up
- A **central air conditioner** compressor
- Power tools, air compressors, and shop equipment

The generator only has to supply that surge for a second or two — but if it can't, the motor won't start, and the generator may stall or trip instead.

! One big surge at a time, usually

Motors rarely all start at the exact same instant. That's why the worksheet only asks you to add the single largest starting jolt on top of your running total, not every jolt added together.

The Worksheet, Step by Step

Here's the actual recipe, now that you know the two numbers involved.

- **List** the things you truly want running at the same time — your real essentials, not the whole house.
- **Write down** each one's running watts, straight off its own label.
- **Add** those running watts together. That's your running total.
- **Find** the single largest starting watts among those same items.
- **Add** just that one biggest starting number on top of your running total.
- That grand total is what your generator's running **and** starting watts need to comfortably clear — on the fuel you'll actually use.

★ Happy to do this with you

Some folks like company for this part. I'm glad to sit at the kitchen table, go through your labels, and fill this worksheet out together.

Where to Find Your Real Numbers

The worksheet only works with real numbers off real labels — not guesses, and not someone else's numbers.

- **Appliances and tools:** a small metal or sticker tag, often on the back or bottom, lists watts or amps (multiply amps by volts if only amps are shown).
- **Well or sump pump:** a nameplate on the pump itself, or a spec sheet, usually listed by horsepower (HP).
- **Furnace or boiler blower:** a data plate inside the access panel, or ask your HVAC pro.
- **Generator:** its own spec plate or manual lists running and starting watts, often broken out by fuel.

Can't find a label, or it's too worn to read? A licensed electrician — or I — can often track it down by brand and model number instead.

✓ Snap a photo

While you're looking at each label, take a picture of it. That way you have every number handy later without crawling behind the fridge twice.

Try It With a Pencil

Here's how the worksheet looks once you start filling it in with your own household's numbers.

Item	Running watts	Starting watts
Fridge / freezer	from its label	from its label
Furnace blower or sump pump	from its label	from its label
Lights, phone/router, TV	from labels (usually small)	usually none
Medical device, if any	from its label	usually none

Add up the running-watts column for your running total. Then look down the starting-watts column and carry forward just the single biggest one. Add the two together — that's the number to shop against.

! Use your own numbers

Please don't borrow numbers from a neighbor's fridge or a website's example. Every model is a little different — check the label on **your** own appliances and pump.

Why the Fuel You Choose Changes the Answer

The big wattage number printed on a generator's box is almost always its **gasoline** rating. That matters more than most shoppers realize.

On propane, most generators make roughly 5 to 15 percent fewer running watts than their gasoline rating — about 10 percent is typical. Natural gas trims it a bit further still, simply because it carries less energy in the same volume of gas.

- If gasoline is genuinely your every-time fuel, the headline number is fine to size against.
- If propane is your real outage plan, size against the propane-rated watts, not the gasoline number.
- If natural gas is your plan, size against the natural-gas-rated watts — the smallest of the three.

! Ask for all three numbers

A good listing shows separate wattage for gasoline, propane, and natural gas. If a listing only shows one number, ask before you buy — there's a whole shopper's checklist guide in this series.

Rotating Loads Can Shrink the Generator You Need

Sizing well isn't only about buying bigger. It's also about how you use what you've got.

If you take turns with the big stuff — running the microwave for a few minutes, then switching back to the fridge and furnace — you can often get by with a smaller, less expensive generator than if you tried to run every appliance's running watts all at once. There's a whole guide in this series on exactly how to do that day to day.

✓ Sizing and habits work together

A generator sized for your true essentials, plus the habit of taking turns with everything else, covers almost any household comfortably.

Sizing If You're in Town or the Suburbs

Town and suburban households tend to share a few sizing patterns worth knowing before you shop.

- Outages are often shorter, so a modest running total covers most situations comfortably.
- A **sump pump** is often the biggest single surge to plan around, rather than a well pump.
- Natural gas may be available at your home, which changes your sizing target — it's the smallest of the three fuel ratings.
- Homes sitting close together make a quieter, inverter-style unit worth the trade-off for many people, even though sizing works the same way either type.

A common town worksheet lands on the fridge, the furnace blower, a few lights, phone and internet, and the sump pump — comfortably covered by a modest generator sized with a little room to spare.

✓ Don't skip the rotation habit

Even in town, taking turns with bigger items — rather than sizing for everything at once — keeps your generator smaller and your bill lower.

Sizing If You're Rural or on a Well

Out in the country, the worksheet usually has one item that dominates everything else on the page: the well pump.

- The well pump is typically the biggest single item, both for running watts and especially for starting watts.
- Most well pumps are **240-volt**, so your generator needs an actual 240-volt outlet, not just regular 120-volt plugs.
- Rural outages tend to run longer, which pushes many households toward a bigger propane supply and a little extra sizing margin.
- More is often riding on the generator at once — well pump, freezer, furnace, maybe a barn or outbuilding — so the running total tends to be larger too.

Because so much rides on getting the well pump's surge right, there's a whole dedicated guide in this series just on backing up a well pump — it's worth reading in full if that's your situation.

★ Water is worth sizing carefully for

Well-pump sizing is one of the jobs I take most seriously, simply because water is the thing folks miss first. Let's get that number right together.

The Mistakes I See Most Often

Most sizing headaches trace back to one of a handful of avoidable slip-ups.

- Sizing off the gasoline number when propane or natural gas is the actual plan.
- Adding up **every** item's starting watts instead of just the single biggest one.
- Forgetting the well or sump pump's surge entirely.
- Buying the smallest unit that should “just barely” cover it, with no safety margin at all.
- Guessing at wattages instead of reading the actual labels.

! Undersized is no fun

A generator that's a touch too big is a comfortable, quiet margin. One that's too small trips breakers, strains the engine, and turns a stressful night more stressful.

While We're Talking Generators: The Rule That Matters Most

Sizing gets you the right generator. Running it safely is what actually keeps your family safe — please read this page even if you skipped ahead for the worksheet.

A running generator gives off **carbon monoxide**, or CO. It's **invisible**, has **no smell**, and can make you pass out or worse before you realize anything is wrong.

- Run the generator **outdoors only**, at least **20 feet** from the house, exhaust pointed away from doors and windows.
- **Never** in a garage, shed, basement, or carport — not even with the door open.
- Put **battery-backup CO alarms** on every level of the house, and test them.
- If an alarm sounds, or anyone feels dizzy, headachy, or sick, get everyone **outside into fresh air** right away and call 911.

! This rule outranks sizing

A perfectly sized generator run in the wrong spot is still dangerous. There's a whole guide in this series devoted just to carbon-monoxide safety if you'd like the full picture.

A Quick Word on Handling Fuel

Sizing naturally leads to fuel-buying decisions, so here's the short version of keeping that part safe too.

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.
Propane	Store cylinders outdoors , upright, away from heat — never in the house or a hot car.
Natural gas	The hookup is a licensed pro's job; there's nothing to store, but know where your gas shutoff is.

★ **Keep your fuel plan simple**

Most customers do well with a couple of fresh gas cans for quick use and a few propane tanks sized to match their generator. There's a whole guide in this series on storing fuel safely if you'd like more detail.

When You Need a 240-Volt Generator

This one detail trips up more well-pump shoppers than anything else, so it's worth its own page.

- Most household outlets and small appliances run on regular 120-volt power.
- A well pump — and some larger shop or farm equipment — typically needs **240 volts**.
- You **cannot** run a 240-volt pump on a 120-volt generator or outlet. It simply won't work, and forcing it can damage the motor.
- If 240V is part of your plan, look specifically for a generator with a 240-volt outlet or twist-lock connector.

✓ Two guides worth pairing with this one

There's a dedicated guide on backing up a well pump, and another on safely connecting a generator to your home's circuits with a transfer switch or interlock.

Does an Inverter Generator Size Differently?

Short answer: no. The worksheet works exactly the same way.

Inverter generators still have running and starting watts, just like conventional ones. The difference is in how clean and steady the power comes out, not in how you size it. If you're leaning toward an inverter for its quieter run and gentler power, just make sure whichever model you pick clears your worksheet total on the fuel you'll use.

✓ More on inverters

There's a whole guide in this series on inverter dual-fuel generators if you'd like to weigh whether the extra quiet is worth it for your home.

Winter Can Quietly Shrink Your Margin

A generator sized just right in July can feel a little breathless on a bitter January night, and it's worth knowing why.

Propane has to vaporize to feed the engine, and that process slows down as temperatures drop — especially in a smaller or nearly empty tank.

- Keep a little safety margin in your sizing rather than cutting it razor-thin.
- A larger propane tank, kept fairly full, holds up better in the cold than a small, nearly-empty one.
- There's a whole guide in this series on cold-weather propane if this is a real concern for your home.

✓ Ohio winters and generators

If your outages tend to come with ice and single-digit temperatures, lean toward the generous end of your sizing worksheet, not the razor's edge.

Your Worksheet Can Change With the Season

What you want running shifts through the year, so your worksheet is worth a second look now and then.

Winter leans hard on the furnace blower. Summer might add a window air conditioner or extra fans. Holidays add a few more lights and devices. Redo the worksheet, or at least glance back over it, whenever your household's priorities shift for the season.

✓ Keep the worksheet somewhere handy

Tape a copy inside the generator's cover, or tuck it in a kitchen drawer, so you're not re-deriving it from memory during an actual storm.

Shopping Once You Know Your Number

Once you have your worksheet total, and know your fuel, shopping gets much simpler.

- Compare **running and starting** watts — not just one or the other.
- Check the wattage specifically listed for the fuel you plan to use most.
- Note whether it has a **240-volt outlet** if your worksheet needs one.
- Leave yourself a little room above your total rather than shopping to the exact number.

★ Send me the listing before you buy

I'm glad to look over a generator you're considering and tell you honestly whether it clears your worksheet — no commission, no sales pitch, just a straight answer.

When to Give Me a Call

You can absolutely work through this worksheet on your own — that's what it's for. But plenty of folks would rather have company for it, and I'm always glad to help.

- Working through your own sizing worksheet together, label by label.
- Sizing specifically for a well pump's surge and 240-volt needs.
- Reviewing a generator listing before you buy it.
- Setting up a safe way to connect it to your home's circuits.
- A yearly check-up so it's ready when the numbers actually matter.

I come to you, here in Portage County and nearby, and explain everything in plain language at whatever pace suits you. No question is too small.

★ 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
Size it right	Add running watts, then add just the biggest starting surge on top.
Find my numbers	Check the label on each appliance, pump, and the generator itself — never guess.
Size for propane or NG	Use that fuel's rating, not the bigger gasoline number on the box.
Back up a well pump	Make sure the generator has a 240-volt outlet sized for the pump's surge.
Run more with less	Take turns with big loads instead of sizing for everything at once.
Leave some margin	A little too big is fine; too small trips breakers and frustrates you.
Get help	Call Bill: (330) 200-8042.

Words People Use

A few terms you may hear while sizing a generator, in everyday language. No quiz at the end.

Q: Running watts

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

Q: Starting (surge) watts

The extra burst a motor needs for a moment when it first turns on. You only add the single biggest one to your total.

Q: Nameplate / data plate

The small label on an appliance, pump, or generator that lists its real watts, amps, or horsepower.

Q: Derate

The dip in a generator's power output on propane or natural gas compared to its gasoline rating.

Q: 240-volt

A stronger household circuit, typically needed for a well pump and some large equipment. A 120-volt generator can't run it.

Q: Soft starter

A device that smooths out a motor's starting jolt, cutting the surge a generator has to supply.

Q: Load rotation

Taking turns running big items instead of all at once, so a smaller generator can cover more.

Q: Carbon monoxide (CO)

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

The Sizing Worksheet

Four steps from labels to a number you can shop with

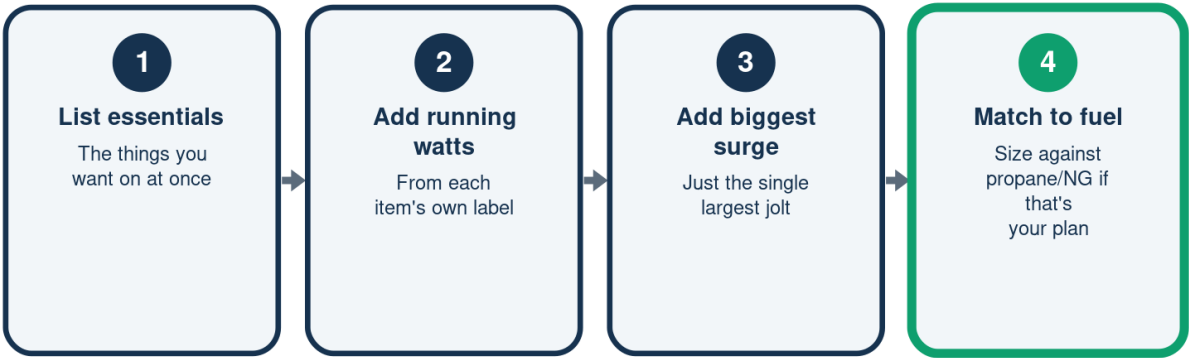


Illustration - a schematic, not to scale. Your setup may differ.

Sizing Target by Fuel

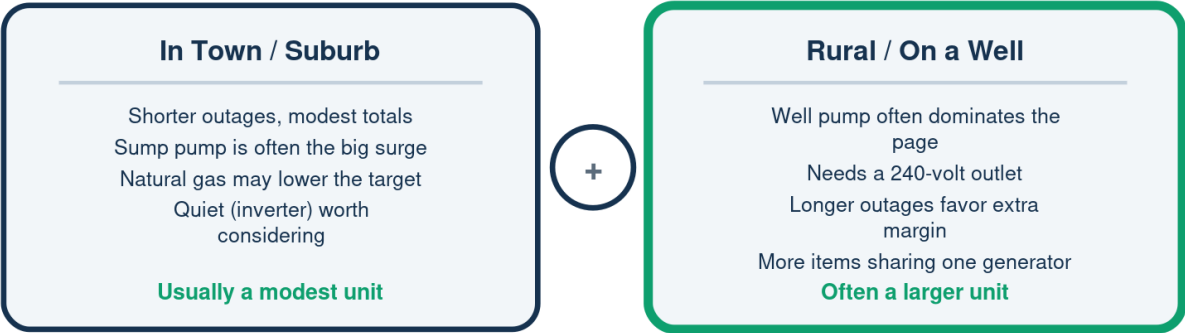
The label's big number is the gasoline rating

	Gasoline	Propane	Natural Gas
Power vs. label	Full rating	~10% less	Less still
Best sized for	It's your fuel	It's your plan	You'll use it

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

Sizing in Town vs. in the Country

The worksheet's the same — the biggest item on it often isn't

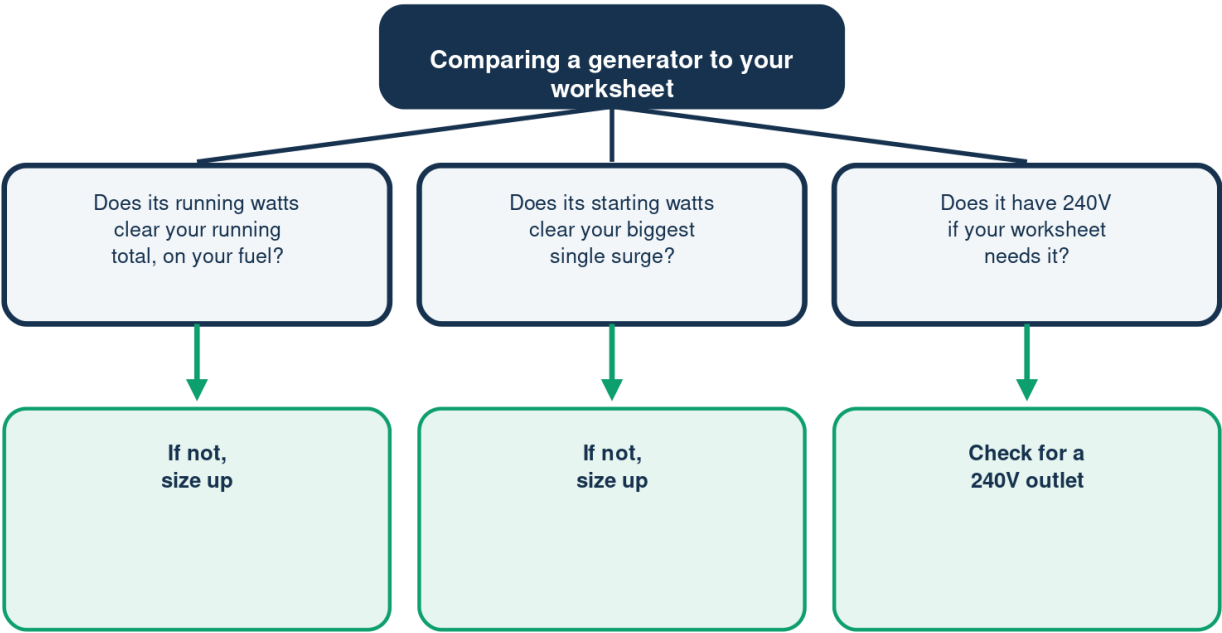


Same worksheet, different biggest number

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

Is This Generator Big Enough?

Three quick checks against your own worksheet total



Always check labels on your own appliances and pump — never guess a number.

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.

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