BILL'S HOME TECH

Home & Small Business Tech Solutions

An Extended Guide · No. 1614

Common Sizing Mistakes (and How to Avoid Them)

The slip-ups that cause sizing regret

Tech Made Simple — Service Made Personal

BillsHomeTech.com · (330) 200-8042 · Atwater, Ohio

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! Read this first — size for safety, not just comfort

Getting the size right is not only about comfort — it is about safety, too. An undersized unit gets overloaded and pushed harder than it should be: it runs hot, it strains, and a motor that can't get the surge it needs can hum, overheat, and be damaged. So take the size seriously and always leave yourself a margin — a little extra room — rather than sizing right to the edge. And one safety rule never changes: any fuel-burning generator gives off carbon monoxide, an invisible, deadly gas, so it runs OUTDOORS ONLY, well away from the house (the safety agencies say at least 20 feet), never in a garage or on a porch even with the door open. A battery or power station makes no exhaust and is safe to use indoors. Most sizing regret comes from a short list of avoidable slip-ups — and two of them are genuine safety hazards, not just wasted money, so this guide flags those in bright letters.

The slip-ups that cause sizing regret

Nearly every disappointed call I get about backup power traces back to the same handful of mistakes. The good news: once you know them by name, they're easy to sidestep — and this guide walks you past every one.

I'm Bill. Sizing a generator or battery isn't hard, but there are a few traps that catch almost everyone the first time. Some just cost you money or leave the fridge humming. A couple are dangerous — they can hurt a lineman or fill a house with poison gas — so we'll spend real time on those.

For each mistake I'll keep it short: here's the slip-up, here's the fix, and here's the deeper guide if you want the full story. Think of this as the checklist you run before you buy.

★ Worried you've already made one?

It's easy to fix a sizing mistake before you buy, and often after. Call or text me at (330) 200-8042 with what you're planning and I'll help you catch any of these before they cost you — free, with nothing to sell you.

The mistakes, on one page

If you remember only this page, you'll dodge the slip-ups that trip up almost everyone.

- ❑ Don't size to the running watts alone — add the biggest starting surge.
- ❑ Don't trust the big bold number on the box; it's usually the brief peak.
- ❑ Don't add every motor's surge — just the single biggest.
- ❑ Don't guess a wattage — read the nameplate.
- ❑ Don't size to the edge — leave a comfortable margin.
- ❑ Never back-feed through a dryer outlet or a suicide cord, and never run a fuel generator close to the house.

> **✔ The one-sentence version**
> Read your nameplates, add your running total plus the single biggest surge, leave a margin, and connect and run the unit the safe way.

Mistake 1: Sizing to the running watts only

This is the single most common slip-up, and it's why a fridge sometimes won't start on a generator that 'should have been plenty.'

Every motor needs two numbers: the steady **running** watts once it's going, and a brief, much bigger **starting** surge to get it spinning. Size to the running number alone and the unit simply can't deliver that jolt — so the motor hums and struggles instead of catching.

The fix: add your running total plus the single biggest surge. Our running-watts-versus-starting guide explains the two-number idea in full — it's the foundation under all of this.

> **✔ Only motors surge**
> Fridges, freezers, pumps, blowers, and air conditioners surge. Lights, heaters, and chargers don't. If it has a motor, plan for the jolt.

Mistake 2: Trusting the big bold number on the box

Marketing loves the largest figure, and it's very often not the one you should be sizing with.

The giant number printed on the front of a generator or power station is usually the brief **peak** or **surge** — what it can deliver for a moment — not the **running** or **rated** watts it supplies steadily all day. Size your steady loads against the peak by mistake and you'll come up short.

The fix: find the smaller 'running' or 'rated' figure and use that for your steady total, keeping the surge figure for the motor-starting moment. When a box brags only one number, treat it with a little suspicion.

> **! Two numbers, and the smaller one does the daily work**
> A unit that advertises a big peak may run far less steadily. Always look for both numbers, and compare units by their running rating.

Mistake 3: Adding every motor's surge together

This one makes people overpay for a giant unit they don't need.

Some folks add up the starting surge of the fridge, the freezer, the well pump, and the furnace blower all at once, and end up with an alarming number. But motors essentially never start at the very same instant — they kick on one at a time, as each happens to need to.

The fix: add your running total plus only the single biggest surge. Adding a smaller motor to the list usually doesn't raise your surge number at all. Our running-watts-versus-starting guide covers why this works.

> **✔ The rare exception**
> If two big motors truly might start together — say a well pump and a furnace blower in a cold snap — some folks add both surges for peace of mind. It's seldom necessary, but it never hurts.

Mistake 4: Guessing instead of reading the nameplate

A guess feels faster, but it's the root of most sizing that comes out wrong.

Every appliance carries its real numbers on a small label — the nameplate — usually on the back, the bottom, or inside a door. Guessing 'it's probably fine' is how a plan drifts too small or too big without anyone noticing until the power's out.

The fix: read the nameplate. Look for watts; if you see only volts and amps, multiply them together for the running watts. Our guide on reading a nameplate shows you exactly where to look and what each marking means.

> **★ Photograph your labels**
> Walk around with your phone and snap the nameplate on the fridge, the furnace blower, the pump, and anything else you'd want running. Text them to me at (330) 200-8042 and I'll help you read them — free.

Mistake 5: Leaving no margin

Sizing right to your calculated number leaves nothing in reserve, and a unit at its ceiling is a strained, unhappy unit.

Run a generator or battery flat-out and it runs hot, works hard, and stumbles the moment anything extra comes on. There's also nothing left for the day you want to add one more thing. A sensible cushion above your number keeps everything running easily.

The fix: leave a comfortable margin — but don't massively oversize either, since too big costs more, weighs more, and drinks more fuel. Our guide on margin and headroom explains just how much cushion is sensible, and how heat and long cords quietly eat into it.

> **✔ Sensible, not the biggest on the lot**
> The goal is comfortable headroom, not the largest unit you can find. A little room to spare is the sweet spot.

Mistake 6: Sizing for wants, not musts

It's easy to size for the whole house out of habit, then buy far more unit than an outage actually calls for.

When you plan around everything you'd **like** to run — every light, the big TV, the dishwasher — your number balloons and so does the unit. But an outage is about what you truly need: safety, food, water, heat, medical equipment, a way to reach the world.

The fix: build a must-run list first — must, want, skip — and size for the musts. Our guide on making your must-run list walks through it, and our guide on essentials versus whole-home helps you decide how big a goal makes sense.

> **✔ You can always run wants in turns**
> Sizing for musts doesn't mean you never run a want — it means you take the extras in turns rather than paying to power everything at once.

Mistake 7: Forgetting the well pump is 240 volts

This is the classic rural surprise, and it can send you back to the store.

Most home well pumps are 240-volt motors with a big starting surge. You can't feed a 240-volt pump with a plain extension cord, and a 120-volt-only unit can't run it at all. Folks discover this after buying, which is a hard way to learn it.

The fix: confirm your pump's voltage and its surge before you buy, choose a unit with a 240-volt outlet and real surge headroom, and plan a transfer switch or interlock with a licensed electrician. Our well-pump surge guide covers the whole thing.

> **! Undersize the pump and it just hums**
> A pump asked for a jolt the unit can't deliver will hum, strain, and heat instead of starting — hard on the motor. Give a 240-volt pump generous headroom, and when torn between sizes, size up.

Mistakes 8 and 9: Forgetting 'how long,' and mixing up watts with watt-hours

Two mistakes about time rather than power — easy to make, easy to avoid once you see them.

Mistake 8 — forgetting how long. A unit big enough to run your list still needs the fuel or stored energy to keep running for the length of the outage. Size for **how long** as well as **how much**: plan fuel or watt-hours for the expected outage plus a reserve. Our guide on sizing for how long covers runtime and fuel.

Mistake 9 — watts versus watt-hours on a battery. These are two different numbers. **Watts** is how much a battery can deliver at once; **watt-hours** is how much energy it stores, which decides how long it lasts. A battery can have plenty of one and too little of the other. Our guide on watts versus watt-hours untangles it.

> **✔ Ask both questions of a battery**
> Can it deliver enough watts for my running total plus the biggest surge? And does it hold enough watt-hours to last the outage? You size for both.

Two kinds of homes, two sets of needs

The mistakes that bite hardest depend a good deal on where you live — and, above all, on whether a well pump is on your list.

If you live in town or the suburbs

In town or a close-in suburb, the traps are usually about the numbers on the box and the cushion you leave. City water keeps flowing, so there's no pump jolt to plan around, and your biggest surge is often just the fridge or a window air conditioner.

- The most common town mistakes are trusting the big peak number and leaving no margin.
- Read the fridge and air conditioner nameplates — their surge is easy to overlook.
- Size for musts, not the whole house, so you don't overpay for a unit you rarely lean on.
- Our guide on choosing a portable generator helps match your number to the right size class.

If you are out in the country on a well

Out on a well, the costly mistakes cluster around the pump and the long outage. The well pump is a 240-volt motor with the biggest surge on the property, and no power means no water at all.

- The biggest rural mistake is undersizing the well pump's surge — give it generous headroom.
- Don't forget it's 240 volts: you'll need a transfer switch or interlock and a 240-volt outlet, not a cord.
- Store water, since even a good generator can have an off day and the taps go dry without the pump.
- Plan enough fuel for a long outage — rural outages run longer, so days not hours. Our well-pump surge guide goes deeper.

> **★ Different homes, different traps**
> Tell me where you live and what's on your list — pump or no pump — and I'll help you spot the mistakes most likely to catch you. Call (330) 200-8042. Our well-pump surge guide covers the rural side in depth.

Mistake 10: Back-feeding — the dangerous one

This is not a money mistake. It can kill someone, so it gets its own page in bright letters.

Back-feeding means pushing a generator's power into your house through an ordinary outlet — most often a dryer or range outlet, or with a double-ended cord some people call a 'suicide cord.' It feels like a shortcut, and it's a deadly one.

Done this way, your generator can send power backward onto the utility lines and electrocute a lineman working to restore your power. It also bypasses your home's safety devices and can start a fire. There is no safe version of it.

> **! Use a transfer switch or interlock — always**
> The only safe way to connect a generator to your house wiring is a transfer switch or an interlock, installed at your panel by a licensed electrician. Never a dryer outlet, never a double-ended cord. I'll line you up with a licensed electrician; our guide on your transfer switch's circuit count covers the safe hookup.

Mistake 11: Running a fuel generator too close to the house

The other mistake that can kill, and it's just as important to get right.

Any fuel-burning generator's exhaust contains carbon monoxide — an invisible, odorless gas that can kill in minutes. Running one in a garage, a shed, a basement, or on a porch, even with the door open, lets that gas build up where people are. This is not a small risk.

- Run a fuel generator **outdoors only** — never inside or in an attached space, even with doors and windows open.
- Keep it well away from the house — the safety agencies say at least **20 feet** — with the exhaust pointed away from windows, doors, and vents.
- Put battery-backup carbon monoxide alarms on every level of the home.
- A battery or power station makes no exhaust and is safe to use indoors.

> **! If an alarm sounds, get out first**
> If a carbon monoxide alarm goes off, or anyone feels dizzy, headachy, or sick, get everyone outside to fresh air right away, then call for help. Fresh air first, questions later.

A few stubborn myths, set straight

Some sizing beliefs sound reasonable and lead people wrong. Here they are, next to what's actually true.

The myth	The truth
The biggest bold number means the best unit.	That's usually the brief peak — compare by running/rated watts.
Add up every motor's surge to be safe.	Add just the single biggest surge; motors don't all start at once.
Any generator with a cord can run my well pump.	A 240-volt pump needs a transfer switch and a 240-volt outlet.
More watts means it will last longer.	Watt-hours decide how long a battery lasts, not watts.

> **✔ When a claim sounds too tidy, check it**
> A number that seems too good, or a rule that seems too simple, is worth a second look at the nameplate — or a quick call to me.

How to avoid all of them at once

You don't have to memorize eleven mistakes. Follow the method and you sidestep nearly every one.

- ❑ Read the nameplate on every motor and appliance — no guessing.
- ❑ Add your running total plus the single biggest surge.
- ❑ Leave a comfortable margin, without massively oversizing.
- ❑ Plan how long, too — fuel or watt-hours for the outage plus a reserve.
- ❑ Connect through a transfer switch or interlock, never a back-feed.
- ❑ Run any fuel unit outdoors only, well away from the house.

> **✔ The method is the safety net**
> Every mistake in this guide is really just a step of the method skipped. Take the steps in order and the traps take care of themselves.

Common Questions

The sizing-mistake questions I hear most often, answered plainly.

Q: Why won't my fridge or pump start, even though the generator is big enough?
Almost always the surge. You likely sized to the running watts and the unit can't deliver the brief starting jolt. Check the unit's surge rating against your biggest motor.

Q: The box shows one huge number — can I just size to that?
Better not. That's usually the brief peak, not the steady rating. Find the smaller running or rated watts and size your steady loads against it.

Q: Is it really so bad to plug a generator into the dryer outlet?
Yes — it's genuinely dangerous. It can electrocute a lineman and start a fire. Use a transfer switch or interlock installed by a licensed electrician instead. There's no safe shortcut here.

Q: My battery has lots of watt-hours but won't start my pump — why?
Watt-hours decide how long it lasts, not how much it can push at once. Starting a motor needs enough watts and surge. See our guide on watts versus watt-hours.

Q: How do I know if I've oversized instead of undersized?
If the unit runs lightly loaded all the time, cost more than you needed, and drinks fuel, you may have gone too big. A sensible margin beats the biggest unit on the lot.

> **★ Not sure which mistake you might be making?**
> Send me your list and your plan at (330) 200-8042, and we'll check it against every one of these together, at your pace.

A quick self-check before you buy

Run through these and you'll catch the common mistakes before they cost you.

- ❑ Did I read every nameplate rather than guess?
- ❑ Did I add the running total plus only the single biggest surge?
- ❑ Did I use the running/rated watts, not the big peak number?
- ❑ Did I leave a margin — and not massively oversize?
- ❑ Did I plan how long, and a safe way to connect and run the unit?

> **✔ If any answer is 'not sure', that's fine**
> That's exactly what the deeper guides — and a friendly phone call — are for. Reach me at (330) 200-8042 and we'll fill in the blanks together.

If you think you already got it wrong

Plenty of sizing mistakes can be fixed after the fact. Let the symptom point you to the cure.

- **A motor won't start:** recheck the surge and, for a well pump, the 240-volt hookup. Free up headroom or step up a size.
- **The unit runs hot or strains:** you likely left too little margin — shed some load, and take big motors in turns.
- **It runs out of fuel too soon:** that's a how-long problem, not a how-much one — plan more fuel or watt-hours and a reserve.
- **A breaker trips or a battery flashes overload:** the load is over the unit's ceiling — turn something off before trying again.

> **! Don't force a stubborn start over and over**
> Repeatedly forcing a motor that won't catch can overheat and damage both the motor and the unit. Stop, lighten the load, and if it keeps happening the number was simply too small.

When a mistake means it's time for a pro

Some sizing questions are worth handing to a licensed professional — especially the ones tangled up with wiring.

Whole-home coverage, a permanently installed standby unit, hardwired 240-volt loads like a well pump, or math that sits right on the line between two sizes — these are all good reasons to get a licensed electrician's load calculation, and a measured number with a clamp meter.

Our guide on when to get a professional load calculation walks through exactly what to expect. I help you gather your nameplates and your must-run list, then coordinate the licensed electrician — I don't do the licensed work myself.

> **★ I'll help you get ready for the pro**
> Call or text me at (330) 200-8042 and we'll build your list, read your nameplates, and line up a trustworthy electrician for anything that touches your panel.

The mistakes and fixes at a glance

Here's the whole roundup in one place, with the guide that goes deeper on each.

The mistake	The fix and the guide
Running watts only	Add the biggest surge — running-vs-starting guide
Trusting the peak number	Use rated watts — running-vs-starting guide
Guessing the wattage	Read the plate — nameplate guide
No margin	Leave a cushion — margin and headroom guide
Forgetting how long	Plan fuel or watt-hours — runtime guide
Back-feeding the panel	Transfer switch — connecting-a-generator guide

> **✔ Every fix lives in a deeper guide**
> This page is the map; the deeper guides are the territory. Follow the one that matches the mistake you're most worried about.

Bringing it all together

You now know the traps by name — which means you're already most of the way to avoiding them.

Read your nameplates, add the running total plus the single biggest surge, leave a sensible margin, plan how long, and connect and run the unit the safe way. Do those, and the money mistakes and the dangerous ones both fall away.

From here, our running-watts-versus-starting guide explains the two-number idea, our nameplate and worksheet guides help you find and add your numbers, and our guides on each kind of unit help you match your number to the right machine.

> **★ Let's catch the mistakes before they cost you**
> If you'd rather have a second pair of eyes on your plan, that's exactly what I'm here for. Call or text me at (330) 200-8042 — free, with nothing to sell you.

You don't have to do this alone

You just have to remember that a friendly, patient person is one call away.

I hope this guide made avoiding the common backup-power sizing mistakes 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

The Mistake and the Fix

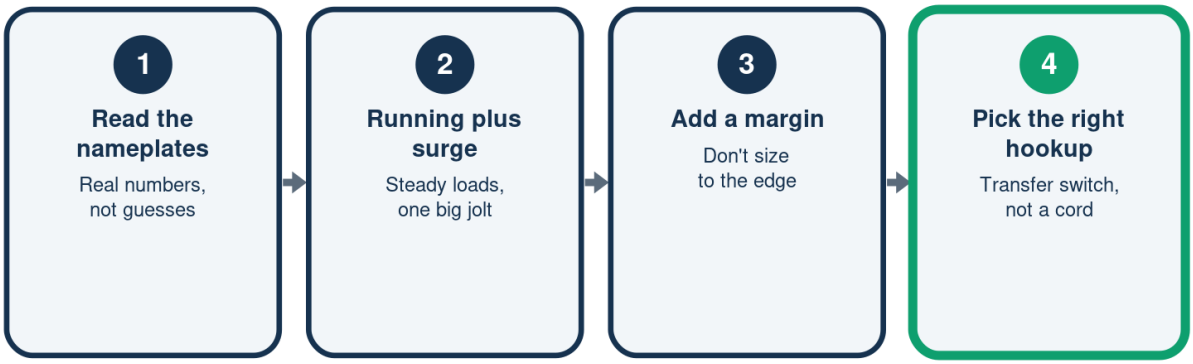
The slip-ups that cause most sizing regret

	What goes wrong	Do this instead
Surge	Used running only	Add biggest surge
The box	Trusted peak number	Use rated watts
Nameplate	Guessed the watts	Read the label
Margin	Sized to the edge	Leave a cushion

Each fix lives in a deeper guide -- follow the one you need.

How to Avoid Sizing Regret

The method that sidesteps nearly every mistake



Every mistake is just a step of the method skipped.

Myth vs. Truth

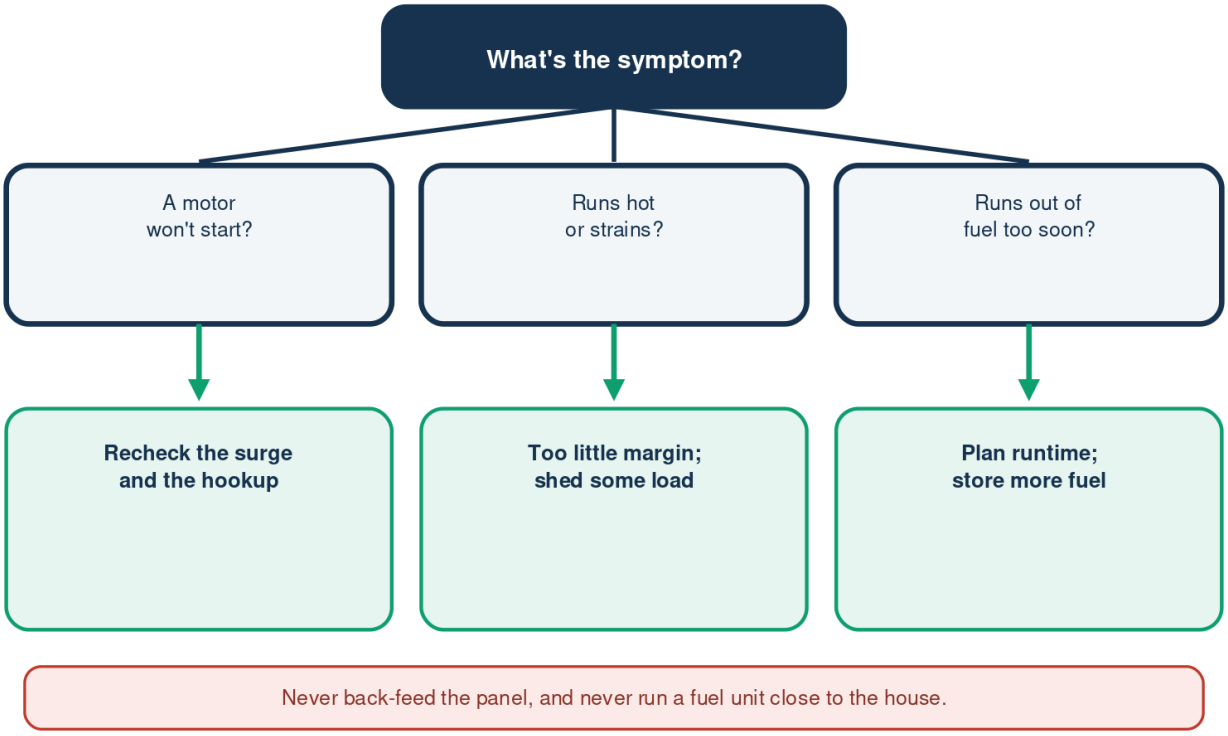
Beliefs that sound reasonable and lead you wrong

	The myth	The truth
Bigger number	Bold box = better	Trust rated watts
Every surge	Add them all up	Just the biggest
Any cord works	Cord-feed the pump	240V needs a switch
Watts = hours	More watts, longer	Watt-hours set time

When a claim sounds too tidy, check the nameplate.

Worried You Got It Wrong?

Let the symptom point to what to recheck



Never back-feed the panel, and never run a fuel unit close to the house.

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

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You do not have to remember all of it.
You just have to remember you can call.
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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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