BILL'S HOME TECH

Home & Small Business Tech Solutions

An Extended Guide · No. 1783

Sizing Backup Power for a Fridge

The compressor surge, and reading the nameplate

Tech Made Simple — Service Made Personal

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! Read this first — when in doubt, throw it out

Here is the one rule that keeps your family safe when the power goes out: when in doubt, throw it out. Keep the refrigerator and freezer doors shut, and know the clock — a closed refrigerator keeps food safe for about 4 hours, and a full freezer holds its cold for about 48 hours (about 24 hours if it is only half full). Any perishable food — meat, poultry, fish, eggs, milk, soft cheese, cut fruit, and leftovers — that has been above 40 degrees Fahrenheit for 2 hours or more should be thrown out. Never taste food to decide whether it is safe; many of the germs that cause food poisoning leave no smell, taste, or change you can see. The point of sizing your backup power right is simple — keeping your food cold without guesswork.

Let's size your backup power without guessing

Figuring out what generator or battery station your fridge and freezer need sounds technical, but it really comes down to two things: reading the nameplate, and understanding the compressor's starting surge.

I'm Bill, and I run Bill's Home Tech here in Portage County, Ohio. One of the questions I get asked most, especially before a storm, is some version of 'what size do I need?' It's a fair question, and it has a straightforward answer once you know where to look.

This guide walks through reading your appliance's own nameplate, planning for the surge that catches so many people off guard, and adding a little headroom — whether you're leaning toward a generator or a battery station.

★ Want to skip ahead to a real answer?

If you'd rather just tell me what you're trying to run, call or text me at (330) 200-8042 and we'll work it out together, no guessing required.

The whole guide, on one page

If you remember only these things, you already know most of what matters about sizing backup power.

- ❑ A fridge or freezer draws a modest, steady load, but needs a brief starting surge when the compressor kicks on.
- ❑ Read the nameplate — volts times amps gives you the running figure.
- ❑ Plan for the surge on top of that running figure, not just the running figure alone.
- ❑ Add a little headroom so a lamp or charger can share the load.
- ❑ Battery stations are rated in watts and watt-hours — two different questions.
- ❑ A generator or battery station only has to clear one compressor's surge at a time.
- ❑ Never guess a wattage. Read it from the nameplate.

> **✔ Keep a copy of the nameplate numbers**
> Once you've read the volts and amps off the nameplate, write them down or snap a photo. You'll want them again for the sizing guide, and for me if you ever call for help.

Two different numbers, not one

Almost every sizing mistake I see comes down to mixing up these two ideas.

A fridge or freezer's running load is modest and steady — it's the power the appliance draws while it's simply keeping things cold, hour after hour. That's the number most people think about first.

But the compressor doesn't ease into motion. Each time it starts, it needs a brief, much bigger jolt of power for a second or two before settling back down to that steady running load. That jolt is the starting surge, and it's the number that trips up a generator or battery station that looked 'big enough' on paper.

> **! Plan for both numbers**
> A backup power source has to cover the running load the whole time the compressor is on, and the surge for that first second or two every time it starts. Miss the surge, and the fridge simply won't start.

Find the nameplate

Every fridge and freezer carries its own honest answer, right on the appliance.

Look for a sticker or metal plate on the back of the appliance, or just inside the door or fresh-food compartment. It lists the volts and amps that appliance draws — information the manufacturer is required to provide.

That nameplate is worth more than any rule of thumb or online guess, because it's specific to your exact appliance. Two fridges that look alike on the showroom floor can carry different numbers.

> **✔ Snap a photo while you're there**
> Nameplates are often tucked in an awkward spot. Take a picture with your phone the first time you find it, so you're not hunting for it again later.

Turning the nameplate into a running figure

There's a plain method here, not a number to memorize.

Multiply the volts by the amps on the nameplate, and you get the appliance's running wattage — the steady load it draws while it's simply running. That's the method; the actual figure is specific to your appliance, so read it fresh off your own nameplate rather than guessing at what's 'typical.'

Remember that this running figure is only half the picture. The starting surge sits on top of it, and it's the nameplate — plus our sizing guide — that will walk you through accounting for both.

> **★ Happy to do the math with you**
> If you'd rather not do the multiplying yourself, read me the numbers off the nameplate and I'll help you work out what you're really looking for. Call (330) 200-8042.

Add up everything you want running at once

A fridge rarely runs alone — most plans cover a few things at a time.

Start your list with the fridge, add the freezer if you have one, and then the handful of small things you'd actually want — a few lights, a phone charger, maybe a fan. Keep it a short, honest list of what you'd really use during an outage, not everything in the house.

This is another step where the method matters more than any single number. Read each appliance's own nameplate, add the figures together, and let our sizing guide walk you through the total — rather than assuming a fridge and freezer draw the same amount.

> **✔ Write the list down ahead of time**
> Make your list on a calm day, before a storm is on the way. It's much easier to think clearly about what you truly need when you're not already in an outage.

Size a little bigger than the bare minimum

A unit sized to the exact edge of what you need is a fussy unit to live with.

Once you've added up your running loads and planned for the surge, leave a little room to spare. That headroom is what lets a lamp, a phone charger, or a fan share the load without pushing things right to the limit.

A generator or battery station that's barely enough tends to be touchy — it may struggle every time something else switches on. A little extra breathing room makes the whole setup far more forgiving to actually live with during an outage.

> **! Barely enough is not the same as enough**
> Sizing to the exact minimum leaves no room for the small surprises that come up during a real outage. A little headroom costs little and saves a lot of frustration.

Some comfort: it's one surge at a time

The surge sounds intimidating until you realize what it actually asks of your equipment.

A generator or battery station doesn't have to clear every appliance's surge all at once. It only has to clear one compressor's starting surge at a time — the moment that one appliance kicks on. Everything else on the circuit can simply be sitting at its steady running load.

That's part of why a reasonably sized generator or battery station can often handle more than people expect. It isn't adding up every possible surge in the house — it's handling them one at a time, as each appliance happens to start.

> **✔ Stagger big appliances when you can**
> If you're running a fridge, a freezer, and something else with a compressor or motor, starting them one at a time rather than all at once is easier on your backup power.

Battery stations ask two separate questions

A battery or solar power station is rated with two different numbers, and both matter.

Watts answer the question 'can it start the fridge at all' — covering the running load and the surge for that first second or two. Watt-hours answer a completely different question: how long it can keep going once it's running.

Defer both numbers to the right source. For the appliance side, that's the nameplate. For the station side, that's its own rating and our sizing guide. Don't let anyone talk you into a runtime estimate that isn't tied to your actual appliance and your actual station.

> **! Never invent a runtime**
> It's tempting to want a simple answer like 'it will run for so many hours,' but that depends entirely on your station's watt-hour rating and your appliance's draw. Match the real numbers instead of guessing.

Two kinds of homes, two sets of needs

How you size backup power looks different depending on what you're protecting and where you live.

If you live in town or the suburbs

In town or the suburbs, sizing backup power for the kitchen is often a modest job. Many households are really just sizing for a fridge, maybe a freezer, and a few lights — a small unit does it.

- Often just the kitchen fridge and maybe one freezer to plan for.
- A modest battery station or small generator frequently covers it.
- Read each nameplate and add a little headroom, and you're likely set.
- If you lose power only occasionally, keep the sizing simple.

If you are out in the country on a well

Out in the country, especially on a private well, the plan usually needs to be bigger. The well pump, a furnace blower, and one or more freezers can all be asking for power at the same time, so sizing takes more thought.

- The well pump often needs to run alongside the fridge and freezer, so it shares the backup plan.
- A furnace blower and multiple freezers add to the same list — add up what you want to run together.
- Prioritize: decide which loads matter most if you can't run everything at once.
- A bigger plan usually means a larger generator or battery system — our sizing guide can help you work through it.

> **★ Not sure what you're really sizing for?**
> Tell me what you want to keep running — the kitchen, the well, a furnace blower — and I'll help you add it up before you buy anything. Call (330) 200-8042.

! Read this first — carbon monoxide is the real danger

A running gas generator's exhaust contains carbon monoxide — an invisible, odorless gas that can kill in minutes. Never run a gas 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. A battery or solar power station is the safe indoor alternative — it makes no exhaust at all. Sizing is only half the plan — a generator sized right still has to run outdoors, well away from the house, every single time.

If you're leaning toward a generator

A generator can carry a fridge and freezer through a long outage, but sizing and safety go hand in hand.

A generator sized for your fridge and freezer works the same way as any other backup power: read the nameplate for the running load, and remember the surge each time the compressor kicks on. Because it only has to clear one appliance's surge at a time, a reasonably sized generator often covers more than people expect.

A generator runs only as long as it has fuel, so if you're expecting a longer outage, plan your fuel supply the same way you'd plan food and water. I've written a separate guide on connecting a generator to your fridge safely, if you're ready for that step.

If you're leaning toward a battery station

A battery or solar power station is a quiet, indoor-safe way to keep the fridge going, as long as it's sized to match your appliance.

Unlike a generator, a battery station makes no exhaust, so it can sit right in the kitchen next to the fridge. It recharges from a wall outlet, a car, or solar panels, and it doesn't need a storm-day trip for fuel.

> **✔ A battery power station is safe to use indoors**
> Unlike a gas generator, a battery or solar power station makes no exhaust and no carbon monoxide, so it is safe to run inside the house right next to the refrigerator. A gas generator is the opposite — it must always run outdoors, well away from doors, windows, and vents.

Battery stations are rated in two numbers: watts, which tells you whether it can start your fridge's compressor surge, and watt-hours, which tells you how long it can keep running. Match both numbers to your appliance's nameplate and the station's own rating — never guess either one.

Why "big enough on paper" can still fail

This is the single most common sizing mistake I see.

It's an easy trap: add up the running wattage for everything you want to power, buy a generator or battery station that covers that number, and assume you're done. Then the fridge won't start.

The running number only describes the steady load. The moment the compressor kicks on, it needs a brief, much bigger surge — and a unit sized only for the running total often can't deliver that jolt. Reading the nameplate for the running figure is only step one; the surge is step two.

> **! Running watts is not the whole story**
> A unit that covers your running total on paper can still stall the moment the compressor tries to start. Always size for the surge, not just the steady draw.

Test it under load, before you actually need it

The calmest day to learn whether your sizing was right is a day with no storm in sight.

Pick a quiet afternoon and actually start the fridge on your generator or battery station. Watching the compressor kick on and settle into a steady hum tells you far more than any amount of paper math.

If it struggles or stalls, better to find out now, with time to size up or rethink the plan, than during the middle of a real outage with a freezer full of food on the line.

> **✔ Make it a habit, not a one-time test**
> Test the setup again every so often, especially after you add a new appliance to the plan or the fridge itself gets replaced. A nameplate can change even when the kitchen looks the same.

Before a storm is forecast to hit

A little preparation on a calm day turns a stressful forecast into a manageable one.

- Confirm your generator or battery station still covers what you actually want to run.
- Make sure fuel is on hand, or the battery station is fully charged.
- Double check that any recent new appliance — a second freezer, say — is included in your plan.
- Locate the nameplates again if it's been a while, so the numbers are fresh in your mind.

> **★ Let's do a pre-storm check together**
> If a storm is coming and you want a second set of eyes on your plan, give me a call at (330) 200-8042. A quick check now beats a surprise later.

After the lights come back on

The end of an outage is the best time to learn something for next time.

Take a minute to note what actually ran, for how long, and how comfortably. Did the generator or battery station handle everything you asked of it, or did something need to be turned off to make room?

That little bit of after-action notekeeping is how a sizing plan gets better over time. It also gives you something concrete to bring up if you ever want a hand refining it.

> **✔ A short note is enough**
> You don't need a spreadsheet — a sentence or two on your phone about what ran and how it went is plenty to refine your plan next time.

Common mistakes people make when sizing backup power

A handful of avoidable slip-ups explain most of the 'my generator won't start the fridge' calls I get.

- **Guessing at the wattage** instead of reading it straight off the appliance nameplate.
- **Ignoring the starting surge** and sizing only to the steady running load.
- **Skipping the headroom** and sizing to the exact edge of what's needed.
- **Sizing to barely enough**, which makes the whole setup fussy to live with.
- **Forgetting the well pump**, on a rural property where it shares the same backup plan.

> **! The nameplate settles every one of these**
> Every mistake on this list gets fixed the same way: read the actual nameplate, plan for the surge, and add a little room. No guessing required.

Let me read the nameplates with you

If wading through stickers and spec numbers isn't your idea of a good afternoon, you don't have to do it alone.

On a visit, I can look at the nameplates on your fridge, freezer, and anything else you want to keep running, and help you add it up in plain English — no guessing, no jargon.

> **★ Let's add it up together**
> Bring me the nameplates, or let me come take a look, and we'll work out what size generator or battery station actually fits your kitchen. Call (330) 200-8042.

For just the kitchen, it doesn't take much

People often picture a bigger, more complicated setup than a fridge and freezer actually need.

A fridge and a freezer are a modest, friendly load. Together with a few lights and small essentials, they're often smaller than people fear once you actually read the nameplates instead of guessing.

That's good news if your main goal is simply keeping the kitchen going through a typical outage. You don't need to plan for the whole house just to protect the food in it.

> **✔ Start with just the kitchen, expand later**
> If backup power feels overwhelming, start by sizing for just the fridge and freezer. You can always add to the plan later if you decide you want more covered.

Print this page and stick it on the fridge

A quick card for the day you're actually shopping for or testing backup power.

- ❑ Read the nameplate — volts and amps, not a guess.
- ❑ Plan for the starting surge, not just the running load.
- ❑ Add a little headroom for a lamp or a charger.
- ❑ Test it under load on a calm day, before you need it.
- ❑ Still not sure? Ask Bill.

> **★ Keep my number nearby too**
> Tape my number right next to this checklist: (330) 200-8042. If you're ever unsure, a quick call costs you nothing.

Common Questions

The questions I hear most often about sizing backup power for a fridge or freezer.

Q: What size generator or battery station do I need for my fridge?

There's no single number that fits every kitchen. Read your appliance's nameplate for the running figures, then plan for the compressor's starting surge on top of that. Our sizing guide walks through the method step by step.

Q: What is the starting surge?

It's a brief, much bigger jolt of power a fridge or freezer draws for a second or two when the compressor kicks on — well above its steady running load. Backup power has to be able to deliver that jolt, not just the running number.

Q: Why won't my generator start the fridge?

Most often, the generator covers the running wattage but not the starting surge. Size for the surge, add a little headroom, and test the unit under load before you rely on it.

Q: How long will a battery station run my fridge?

That depends on the station's watt-hours and its own rating, matched against your fridge's nameplate figures. Check the station's specifications rather than guessing at a runtime.

Q: Do I need a whole-house backup unit?

Often not. Many kitchens do fine with a modest generator or battery station sized to the fridge, freezer, and a few essentials. A whole-house unit matters more if you're also running a well pump, furnace, or several big loads at once.

> **★ Still want a hand sizing it?**
> Sizing backup power is one of the questions I get asked most, and I'm glad to help you work through it. Call or text me at (330) 200-8042.

You don't have to do this alone

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

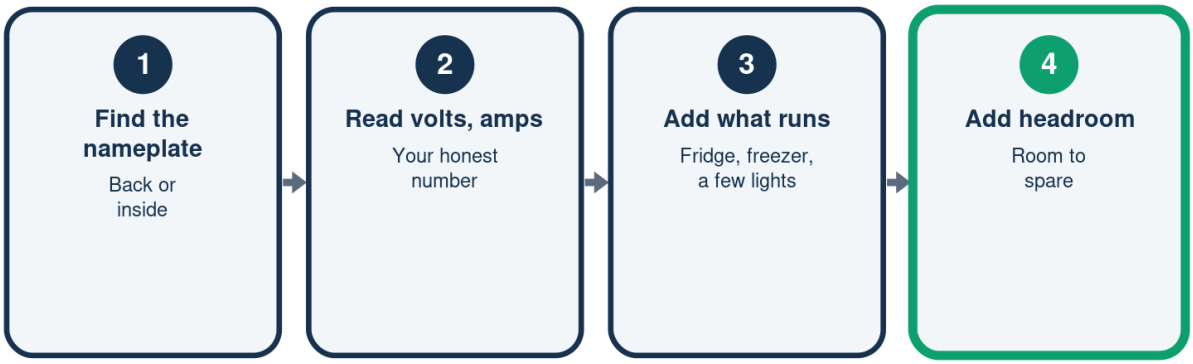
I hope this guide made sizing backup power for your fridge and freezer feel a little less daunting and a lot more doable. Keep it in a drawer with your other home papers, come back to a page whenever you need it, and don't worry about memorizing anything.

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

Size It From the Nameplate

No guessing



The nameplate tells the truth -- a rule of thumb doesn't.

Running vs Starting

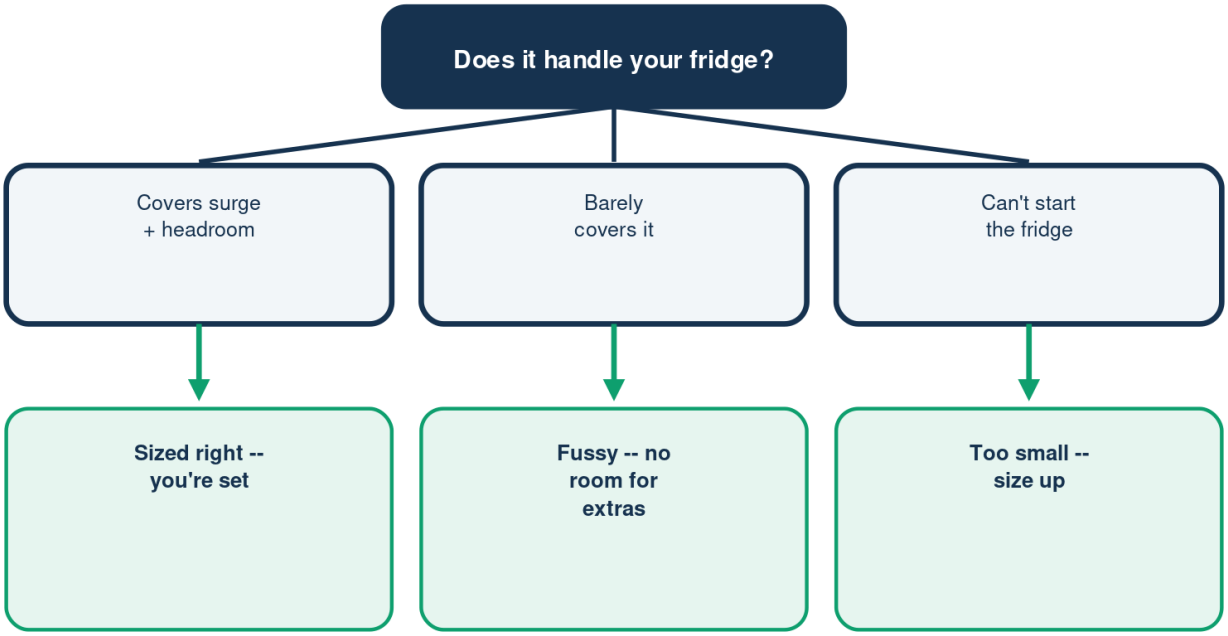
Plan for the jolt

	Running	Starting Surge
How much	Modest, steady	Much bigger
How long	The whole time	A second or two
Plan for	The steady load	The surge too
Get it from	The nameplate	The nameplate

A unit that covers running but not the surge can't start the compressor.

Is It Sized Right?

Check before the storm

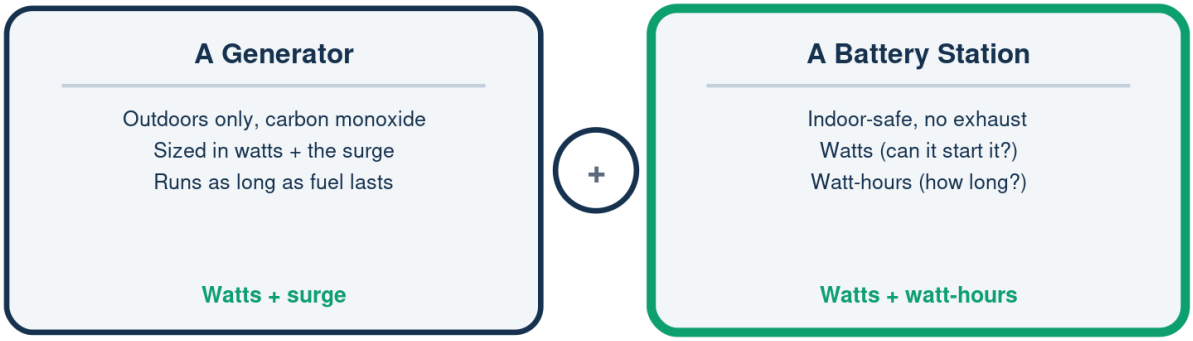


Read the nameplate; test it under load.

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

Generator vs Battery Sizing

Two ways to size



Read the appliance nameplate -- never guess the number.

Both must clear the compressor's starting surge.

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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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