



An Extended Guide · No. 1295

Sizing Your Standby Generator

Whole house or just
the essentials?

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! Read this first — carbon monoxide is still the real danger

A standby generator runs on an engine, and engine exhaust contains carbon monoxide — an invisible, odorless gas that can kill. Your installer sets the unit outdoors and spaces it away from windows, doors, and vents to meet the maker's instructions and local code, which is a big part of what keeps you safe. Your job is to keep it that way: never let anyone box it in, build a structure around it, or let snow, leaves, or drifts pile up against it, and never move it closer to the house. Put battery-backup carbon-monoxide alarms on every floor and outside the bedrooms, and test them — the safety agencies urge this for every home. If an alarm sounds, or anyone feels dizzy, sick, or sleepy, get everyone into fresh air first and ask questions later. Sizing decides how big your unit is, never where it sits — whatever size you choose, a pro places it outdoors at the safe spacing, every time.

Whole house, or just the essentials?

Sizing a standby generator comes down to one honest question: do you want to back up your whole house, or just the circuits that matter most? Both are good answers — the trick is matching the unit to what you truly need, without overpaying or coming up short.

I'm Bill, and I run Bill's Home Tech here in Portage County, Ohio. I've spent 30+ years helping folks make right-sized, unhurried decisions about their home equipment. This guide is me at your kitchen table, walking you through the sizing choice in plain English — no brand names, and no wattage numbers I'd have to invent.

We'll build a must-run list, talk about why motors are the tricky part, and land on the one thing that actually settles the size: a proper load calculation from your installer. The finer points of load-management gear live in our load-management guide.

★ There's nothing to sell you here

I don't sell generators and I earn no commission, so this is just honest advice — and I'd rather see you sized right than sold big. If you'd like help thinking through your loads, call or text me at (330) 200-8042.

The whole guide, on one page

If you remember only these things, you already understand how sizing works.

- ❑ There are two honest paths: back up the whole house, or back up just the essential circuits.
- ❑ Whole-house means a larger unit, often with a whole-house transfer switch; essentials means a smaller unit and a transfer switch or load center feeding chosen circuits.
- ❑ Start with a must-run list — everything you'd want running in a two-day outage.
- ❑ Motors — the well pump, AC compressor, furnace blower, sump — need a big surge to start, and that surge often drives the size.
- ❑ The real size comes from a load calculation by your installer — never a guess from a chart.
- ❑ Load-management gear can let a smaller unit cover more, so you're not always forced to buy big.

✓ The one-sentence version

Sizing isn't about buying the biggest generator — it's about matching a unit to your real loads, which a load calculation does far better than any chart or salesperson's guess.

The two honest paths

Almost every sizing conversation is really a choice between these two. Once you see them clearly, the rest falls into place.

Back up the whole house

A larger unit, usually paired with a whole-house transfer switch, runs everything — lights, heat, water, air conditioning, all of it. Nothing is left out, so there's nothing to think about during an outage. It's the simplest to live with, and the bigger investment.

Back up the essentials

A smaller unit paired with a transfer switch or load center backs up only the circuits you choose — heat, the fridge, the well or sump pump, some lights and outlets. It costs less and covers what truly matters, which makes it the smart-money choice for a great many homes.

✓ Neither is the 'right' answer

Whole-house is about not thinking; essentials is about spending wisely. The best choice is the one that fits your needs and budget — and a load calculation makes either one work.

Start with a must-run list

Before anyone talks units or numbers, make a list. It's the single most useful thing you can do, and it drives everything that follows.

Picture a two-day outage and write down what you'd truly want running. Keep the must-haves separate from the nice-to-haves — that line is where a lot of the cost lives. A typical list looks something like this:

- Heat — the furnace blower or boiler circulator (even a gas furnace needs electricity to run).
- The refrigerator, and a chest freezer if you have one, to save your food.
- Water — the well pump if you're on a well, and the sump pump if you have a basement.
- A few lights and outlets, plus the internet and a way to charge phones.
- Any medical equipment someone in the home depends on.
- In a heat wave or deep freeze, cooling or extra heat — a bigger ask that pushes the size up.

★ Text me your list

That little list is the whole starting point. Jot it down and text it to me at (330) 200-8042, and I'll help you sort the musts from the wants before you ever talk to an installer.

Why motors are the tricky part

Here's the one piece of the puzzle that trips people up — and the reason sizing needs a real calculation, not a chart.

Anything with a motor — the well pump, the AC compressor, the furnace blower, the sump pump — draws a big jolt of power for the split second it starts, far more than it uses once it's humming along. That brief starting surge can be several times the running amount.

A generator has to be big enough to cover the surge of the largest motor while still carrying everything else that's on. Miss that, and the unit stumbles or trips right when a pump kicks in. This is why you can't just add up the running numbers on a chart and call it sized — the surges are the hidden part.

✓ The surge is why sizing is a real calculation

The starting surge is invisible on a spec sheet's running numbers, but it's exactly what a proper load calculation accounts for. It's also why a soft-start on the AC can shrink the unit you need.

On a well, the pump usually decides it

In a rural home, one load tends to tower over the rest and set the size almost by itself.

Most home wells use a 240-volt submersible pump with a big starting surge — often the largest single load in the whole house. Because no power means no water for drinking, cooking, flushing, or animals, that pump almost always has to be covered. So it becomes the deciding load: size the generator to start the pump comfortably, and it usually handles the rest of your list with room to spare.

You don't need to know the pump's numbers off the top of your head. The nameplate on the pump or its paperwork lists what it needs, or your well company can tell you — and that's exactly what your installer feeds into the load calculation.

✓ The well pump has its own guide

Backing up a well is a big enough topic that we gave it its own guide. Our well-pump guide digs into the pump's surge, sizing to it, and keeping water flowing through a long outage.

Air conditioning and the furnace

Two comfort systems come up in almost every sizing conversation, and each behaves a little differently.

Central air conditioning has a big compressor surge, and it's often the load that pushes a home toward a larger unit. The good news is that a soft-start device can tame that surge, sometimes letting a mid-sized unit run the AC after all — a trick worth asking your installer about.

Heat is a motor load too. The furnace blower and the boiler circulator both run on electricity, and here's the part folks forget: a gas furnace still needs power for its blower and controls, so it won't run in an outage without the generator. Our furnace-and-AC guide covers both in depth.

✓ Comfort is often the whole-house tipping point

Deciding whether to cover central air — and sometimes an electric range or water heater — is frequently what tips a home from an essentials setup toward whole-house. It's a budget choice as much as a comfort one.

What makes the whole-house path bigger

If you want everything to keep running, it's worth understanding what that asks for — so the size and cost make sense.

Covering the whole house means the unit has to carry every load at once, including the big surges from the AC and any large appliances. That calls for a larger generator, usually a whole-house transfer switch, and a fuel supply sized to feed a hungrier unit — more to buy, and more to install.

What you get for it is simplicity: nothing is left out, and you never have to think about what's on. For homes with frequent long outages, medical needs, or a strong preference for business-as-usual, that peace of mind is often worth the larger investment.

✓ The switch grows with the unit

A whole-house setup usually pairs the larger unit with a whole-house transfer switch. How that switch works is its own topic — our transfer-switch guide explains it in plain English.

How the essentials path stays smaller

The essentials path keeps the unit — and the cost — down by being deliberate about what it powers.

Instead of carrying the whole house, a smaller unit feeds a transfer switch or load center wired to just the circuits you chose. Because it only has to cover those loads and their surges, the unit can be smaller, the fuel demand lighter, and the whole install more modest.

The art is in choosing well — heat, water, food, a little light and connection usually make the cut, while central air and big electric appliances often don't. And if you later want to stretch a smaller unit to cover more, load-management gear can help, which we'll come to next.

✓ Smaller often means smarter

For a modest must-run list, an essentials setup can serve you beautifully for far less money. There's no prize for buying more generator than your home actually needs.

Two kinds of homes, two sets of needs

The right size for a tidy in-town lot is often not the right size for a farmhouse on a private well. What you have to back up — and especially your water — shapes the whole calculation.

If you live in town or the suburbs

In town or the suburbs, your water keeps flowing from the city main whether the power's on or not, so sizing is about food, warmth, comfort, and staying connected — and an essentials setup often covers that for a sensible price.

- With no well pump to carry, the biggest surge is usually the central air conditioner — if you choose to cover it.
- An essentials list — furnace, fridge, lights, internet — keeps the unit and the cost comfortably down.
- Going whole-house is a comfort-and-convenience choice here, not a necessity, so it's mostly about budget.
- A soft-start on the AC can shrink the unit you need — worth raising with your installer.

If you are out in the country on a well

Out in the country the well pump changes everything. When the power quits, the pump quits with it — no electricity means no water at all — so the pump has to be covered, and its big surge usually sets the size.

- The 240-volt well pump is typically the deciding load — size to start it comfortably and the rest often follows.
- The sump pump, a chest freezer, and the furnace usually belong on the must-run list too.
- Rural outages run longer, so many folks lean toward covering more — and toward a fuel supply sized for it.
- Read the pump's nameplate or ask your well company, and let the installer's load calculation do the math.

★ Not sure how big you need to go?

Tell me whether you're on city water or a well, and what's on your must-run list, and I'll help you picture the right size before you talk to an installer. Call (330) 200-8042.

The size comes from a load calculation, not a chart

If you take one thing from this whole guide, take this: sizing is a calculation your installer does, not a number you pick off a chart.

A good installer adds up your real running loads, accounts for the biggest starting surge, factors in your fuel supply and wiring, and arrives at a size that fits your home. Online calculators and printed charts are rough starting points at best — they can't see your particular pump, your particular panel, or the way your loads stack up.

This is also your best protection against being oversold. When the size comes from a transparent calculation, you can see why it's that big — and push back if a quote seems to reach for a larger unit than your loads justify.

! Be wary of a size with no math behind it

If someone quotes you a generator size without doing a real load calculation — just a chart, a guess, or 'this is what everyone gets' — slow down. A size you can't see the reasoning for is a size worth questioning.

How a smaller unit can cover more

Here's a hopeful wrinkle: you don't always have to buy big to cover a big home. Smart gear can stretch a smaller unit.

Load-management modules let a smaller generator cover more by taking turns with the biggest intermittent loads — shedding or staggering things like the AC, an electric water heater, the range, or the dryer so they don't all hit at once. A soft-start does something similar for a single motor by softening its startup surge.

Used well, these can let a mid-sized unit do the work of a larger one, saving money up front and on fuel. The details — how they're set up and when they make sense — are a topic of their own, so we keep them in our load-management guide rather than cramming them in here.

✓ It changes the math, not the starting point

Load management can lower the size you need, but the honest starting point is still a load calculation. Get the real number first, then see how much these tools can trim it.

Sizing and the transfer switch go together

The size of the unit and the kind of transfer switch are two halves of one decision — they're chosen as a pair.

A whole-house size naturally pairs with a whole-house transfer switch that carries the entire panel; an essentials size pairs with a transfer switch or load center wired to your chosen circuits. Pick the coverage, and you've largely picked the switch too.

So when you settle your must-run list, you're really settling both the generator and the switch at once. Your installer sizes them to agree with each other, so nothing is mismatched on install day.

✓ The switch has its own guide

How the transfer switch senses an outage and hands your home over is worth understanding on its own — our transfer-switch guide walks through it in plain English, including whole-house versus essential-circuit switches.

Size and fuel supply go hand in hand

A bigger unit is a hungrier one, so the size you choose and the fuel that feeds it are connected.

A larger generator draws more fuel, which is why your gas pro has to confirm a natural-gas line and meter can actually supply the size you're considering — a big unit may call for an upgrade. On propane, a larger unit points toward a larger tank and a solid refill plan so it can run through a long outage.

None of this changes your must-run list; it just means the size and the fuel get decided together, not one after the other. Our natural-gas-versus-propane guide covers the fuel side, and your installer ties the two together.

✓ Right-size the fuel too

Sizing the generator and sizing the fuel supply are the same conversation. A unit your fuel can't feed isn't really sized right, no matter what the nameplate says.

How size drives the cost

Size is one of the biggest levers on what a standby costs, so it's worth seeing how they're tied together.

A larger unit costs more to buy, and it tends to bring a bigger transfer switch, more electrical and gas work, a larger fuel supply, and sometimes a panel upgrade along with it. An essentials setup keeps all of those smaller. That's why sizing and budget are really one conversation.

I won't quote you dollar figures — they vary too much to be honest — but the shape is simple: cover more, spend more. The goal is to cover what you truly need and stop there. Our cost-and-value guide lays out the whole picture fairly, with itemized quotes.

✓ Size for need, not for bragging rights

The cheapest right-sized system is the one matched to your real loads. Paying for capacity you'll never use is the most common way folks overspend on a standby.

A few myths, cleared up

Some common beliefs about sizing just aren't so. Let's clear the air.

- **'I can size it from an online calculator or a chart.'** Those are rough starting points — your real loads, motor surges, and wiring need a proper load calculation from your installer.
- **'Bigger is always safer.'** Oversizing wastes money and can even run poorly under light load. A right-sized unit beats an oversized one.
- **'A standby has to power the whole house.'** Not at all — an essentials setup that covers what matters is often the smarter, more affordable choice.
- **'The well pump is just another appliance.'** Its big starting surge usually makes it the deciding load in a rural home — it can set the size almost by itself.

✓ When in doubt, ask a plain question

There's no silly question about sizing. If a quote's size doesn't come with clear reasoning, ask for it — or ask me. Clear beats clever every time.

How to get ready for the load calculation

A little preparation makes your installer's load calculation faster and more accurate. Here's what to gather.

- ❑ Your must-run list, with the musts kept separate from the nice-to-haves.
- ❑ Whether you're on a well, and the pump's nameplate or horsepower if you can find it — or your well company's number.
- ❑ Whether you want central air conditioning covered, since it's often the biggest single load.
- ❑ Any medical equipment, and anything with a motor — freezers, sump pumps, shop tools.
- ❑ Your fuel picture — natural gas at the house, or room for a propane tank — since size and supply go together.

★ I'll help you build this

If gathering all that feels like a lot, that's exactly what I'm here for. We'll put the list together at your kitchen table so you walk into the quote prepared. Call (330) 200-8042.

Not too big, not too small

Right-sizing is a real thing, and it cuts both ways. The goal isn't the biggest unit or the cheapest — it's the one that fits.

An oversized unit costs more to buy, install, and fuel, and can even run poorly if it rarely sees enough load to work properly. An undersized one strains, trips, or leaves out something you counted on. The sweet spot is a unit matched to your real loads — which, once again, is what the load calculation finds.

This is also where honesty saves you money. If your must-run list is modest, a smaller unit and an essential-circuit switch may serve you beautifully for far less. I'd always rather see you sized right than sold big — and a good installer feels the same way.

✓ Leave a little headroom, not a lot

A touch of headroom for a future need is sensible; a lot of unused capacity is just money sitting idle. Ask your installer how much room the size leaves you, and why.

What I do, and what I leave to the pros

Worth saying plainly, because it's the honest shape of how I can help.

- **What I help with:** building your must-run list, thinking through whole-house versus essentials, making sense of quotes, and lining up licensed pros I trust.
- **What only licensed pros do:** the load calculation itself, the electrical and transfer-switch work, the gas connection, and pulling the permit.
- **What I never do:** the licensed electrical or gas work — that's not my license, and your safety deserves the real thing.

★ Call before you're deep in it

The best time to reach me is while you're still deciding, not after a unit's been chosen and you're wondering if it's right. A little guidance up front saves a lot of second-guessing. Reach me at (330) 200-8042.

Questions worth asking your installer

These get you to a size you actually understand, not just a number on a quote.

Q: Will you do a full load calculation, or just estimate?

You want a real calculation of your running loads plus the biggest starting surge — not a number pulled from a chart or a quick guess.

Q: What's the deciding load in my home?

Often the well pump or the AC compressor. Knowing which load sets the size helps you understand the quote and any trade-offs.

Q: Could a smaller unit work with load management or a soft-start?

Worth asking — it can save real money. Our load-management guide covers how these let a smaller unit cover more.

Q: How much headroom does this size leave me?

Ask what a future big appliance — a heat pump, a hot tub — would do to the unit, so today's choice doesn't box you in tomorrow.

✓ There's no silly question

If an installer won't show the reasoning behind a size, that's a reason to keep looking, not to sign. A good pro is glad to walk you through it.

Common Questions

The questions I hear most about sizing a standby generator, answered plainly.

Q: What size standby generator do I need?

There's no honest one-size answer — it depends on your must-run list and the starting surges behind it. That's a load calculation your installer does; a chart only guesses. I won't throw a wattage at you, and neither should a good pro without doing the math.

Q: Whole house or just the essentials — how do I choose?

Start with what you truly need running and your budget. Whole-house covers everything with a larger unit; essentials covers chosen circuits with a smaller one. Many folks are happiest, and spend less, with a well-chosen essentials setup.

Q: Why do motors matter so much for sizing?

Motors like the well pump, AC compressor, furnace blower, and sump pump draw a big surge the instant they start — several times their running draw. The generator has to cover the biggest surge while running everything else, so motors often drive the size.

Q: Can a smaller unit run my whole house?

Sometimes, with help. Load-management gear lets a smaller unit cover more by taking turns with the biggest loads, and a soft-start can tame an AC surge. Our load-management guide explains how — but the base size still comes from a load calculation.

Q: Do I really need a professional load calculation?

Yes. It's the difference between a system that works when you need it and one that stumbles or costs too much. Charts and rules of thumb guess; your installer's load calculation gets it right for your home.

★ Still unsure what size? Let's talk

Thinking through your loads is exactly the kind of thing I love to help with, with nothing to sell you. Call or text me at (330) 200-8042 and let's build your must-run list together.

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 a standby generator 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

Whole House vs. Essentials

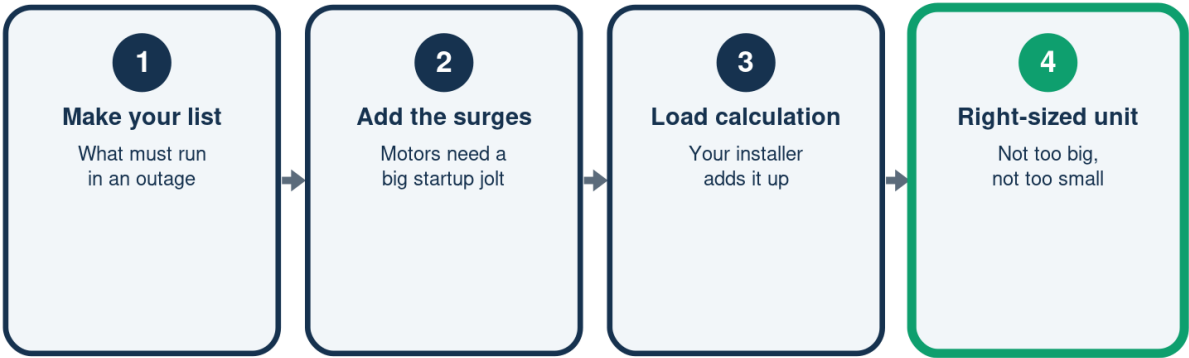
The two honest paths to a right-sized unit

	Whole house	Essentials
The unit	Larger	Smaller
The switch	Whole-house ATS	Switch/load center
What runs	Everything	Chosen circuits
Cost feel	More	Less
Best when	You want it all	Key loads matter

A load calculation from your installer makes either one work.

From Must-Run List to Right-Sized Unit

How the size actually gets decided



Sizing is a load calculation by your installer — never a chart guess.

Running Power vs. Starting Surge

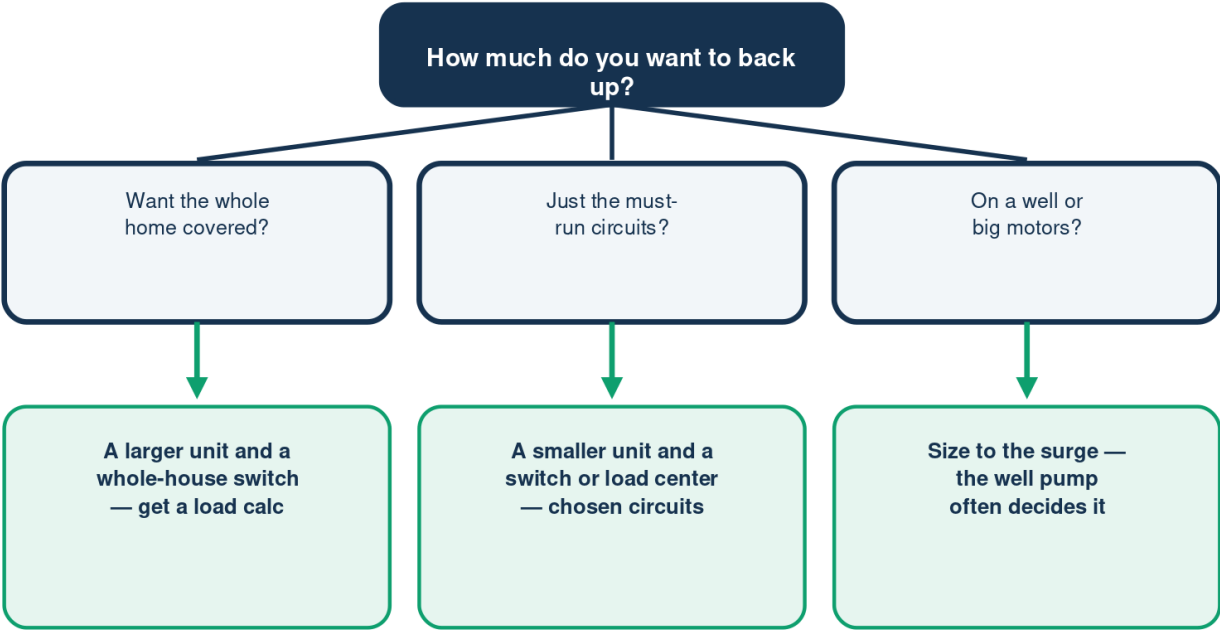
Why motors drive the size

	Running power	Starting surge
The idea	Steady draw	Brief startup jolt
For motors	Moderate	Several times more
Well pump	Modest to run	Big surge to start
Why it matters	Daily load	Can size the unit

A load calculation accounts for the surge you can't see on a spec.

Whole-House or Essential Circuits?

Let what you need backed up point the way



Load-management can stretch a smaller unit — see our load-management guide.

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.
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make it right -- or refund it. No awkwardness,
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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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