



An Extended Guide · No. 1592

Load Planning Made Simple: Where to Start

The calm, no-math-degree
way to size backup power

Tech Made Simple — Service Made Personal

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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. This guide is your calm starting point — the map of the whole territory, before we ever zoom in on any one piece, so none of it has to feel overwhelming.

Where load planning begins

Sizing backup power sounds like a math problem, but it really starts as a list problem — and there is a calm, orderly way through it that anyone can follow at the kitchen table, no math degree required.

I'm Bill. Folks call me worried they'll buy too small and be left in the dark, or too big and waste money on a heavy, thirsty machine they didn't need. The good news is that landing on the right size follows just four plain moves, and this guide walks you to the front door of each one.

Think of this as the overview — the big picture. I'll point you to a deeper guide for every step, so you can go as far into any piece as you like. Nothing on these pages is something you have to memorize.

★ You don't have to figure this out alone

If you'd rather just talk it through, jot down what you'd want to keep running and call or text me at (330) 200-8042. We'll walk the four moves together — free, with nothing to sell you.

The whole idea, on one page

If you remember only this page, you already know the shape of the whole job.

- ❑ Load planning is four moves: list what must stay on, add up the running watts, add the single biggest surge, add a comfortable margin.
- ❑ Running watts are the steady power things need; the surge is the brief, much bigger jolt a motor needs to get started.
- ❑ You add only the single biggest surge, not every surge stacked together.
- ❑ There's a second question too: not just how much power at once, but how long it has to last.
- ❑ Your real numbers come from each appliance's nameplate — not an ad, not a guess.
- ❑ Every step here has a deeper guide of its own for when you're ready.

✓ The one-sentence version

Decide what must stay on, add up what it draws, make room for the biggest motor to start, leave a little cushion — and plan for how long as well as how much.

Start with a list, not a number

The single most common misstep is shopping for a size before knowing what you actually need to power. The list comes first, always.

Picture an outage tonight. Walk through your home in your mind and notice what you'd genuinely want running — not everything, just what keeps you safe, fed, warm or cool, and connected. That short list is the seed of every number that follows.

Once the list exists, the rest is orderly addition. Skip the list and you're guessing — and guessing is exactly what leads to a unit that's the wrong size. Our what-must-stay-on guide is devoted entirely to building this list well.

✓ A number worth trusting comes from your list

No ad and no rule of thumb knows your home. The right size falls out of your own must-run list and your own nameplates — which is why we start there and never with a figure someone else picked.

Move one: list what must stay on

Everything downstream rests on this, so it's worth doing thoughtfully — but it's also the least technical step of them all.

Sort what you'd want running into what truly must stay on, what you'd like if there's room, and what can simply wait. The fridge, a few lights, the internet box, heat in winter, anything medical, and — out in the country — the well pump tend to land in the must column.

You don't add a single watt at this stage. You're just deciding what matters. Our what-must-stay-on guide walks the house with you room by room and helps you tell a must from a want.

✓ **Musts first, wants later**

Cover the essentials first; the extras get added only if there's room to spare once the must-haves are handled. That order keeps you from buying far more machine than you need.

Move two: add up the running watts

Running watts are the steady power your things draw once they're up and going. Add them up and you have the backbone of your number.

A lamp, a charger, the television, the internet box — each draws a fairly steady amount the whole time it's on. A fridge or a furnace blower has a steady running number too, once its motor is already spinning. Add these steady draws together for everything you'd run at once.

Where do the real figures come from? The nameplate — the little label on each appliance. Our nameplate guide shows you where it hides and how to read it, and our running-watts-vs-starting guide explains the steady number in full.

✓ Steady draws are the easy part

Most of your list is well behaved: it draws about the same amount minute after minute. It's the brief starting jolt of the motors — move three — that catches people off guard.

Move three: add the single biggest surge

For a second or two, a motor asks for much more than it needs once it's running. That brief jolt is the surge — and it's the step folks forget.

Anything with a motor or compressor — a fridge, a pump, an air conditioner, a furnace blower — needs a big shove to get moving, then settles down. You make room for that shove by adding just one surge: the single biggest motor on your list, not every motor stacked together.

Why only the biggest? Because motors essentially never start at the very same instant. Our running-watts-vs-starting guide is the deep dive on this two-number idea, which prevents more sizing mistakes than anything else.

✓ One surge, the largest one

Add your steady running total, then the surge of just the biggest motor on top. Adding more small motors rarely changes that surge, because their jolt isn't the biggest one.

Move four: add a comfortable margin

Once you have a number, don't shop for a unit that hits it exactly. Leave yourself a little breathing room on top.

A unit run right at its ceiling runs hot, strains, and has nothing left the moment one more thing comes on. A comfortable cushion above your total keeps ordinary days from becoming a balancing act. But don't massively oversize either — too big costs more, weighs more, and drinks more fuel when it runs lightly loaded all the time.

A sensible cushion, not the biggest unit on the lot. Our guide on margin and headroom explains just how much room is wise, and what quietly eats into it — heat, altitude, a long cord.

! Don't size right to the edge

Sizing exactly to your calculated number leaves no reserve, so the unit stumbles the moment anything extra comes on and runs strained day after day. A margin isn't overbuying — it's the buffer that keeps everything running easily.

The second question: how long, not just how much

The four moves answer how much power you need at once. There's a second question just as important: how long that power has to last.

How much at once is measured in watts — the four moves handle that. How long is a different idea. For a generator it comes down to fuel: a bigger tank and more fuel on hand mean more hours. For a battery or power station it's about watt-hours, the amount of energy it stores.

A unit can be strong enough to run everything yet too small to last the night, or hold plenty of energy yet too weak to start a big motor. So you size for both. Our guide on watts versus watt-hours and our runtime-and-fuel guide cover the how-long side in full.

✓ Two questions, both worth asking

Enough power at once, and enough to last long enough — picture both from the start and you won't be caught short on either one.

The two questions, side by side

Seeing them together makes the whole job click into place.

The question	Measured in	What decides it
How much power at once?	Watts	Your running total plus the biggest surge
How long will it last?	Watt-hours or fuel	Stored energy, or fuel on hand

The four moves in this guide answer the first row. The second row sends you to the duration guides. Most sizing regret comes from answering one row and quietly forgetting the other.

✓ **Match the unit to both rows**

Whether you're weighing a generator or a battery, ask it both questions: can it deliver enough at once, and can it keep going long enough for the outages you actually get?

A map of the guides behind each step

This overview stays shallow on purpose. When you're ready to go deeper on any one piece, here's where each lives.

- **The two watt numbers:** our running-watts-vs-starting guide explains the steady number and the surge.
- **Finding your real numbers:** our nameplate guide shows where the labels hide and how to read them.
- **Your must-run list:** our what-must-stay-on guide helps you decide what truly has to keep running.
- **Adding it up:** our worksheet guide is a fill-in-the-blanks page for your own figures.
- **How long it lasts:** our guides on watts versus watt-hours and on runtime and fuel cover the duration side.
- **Equipment and special cases:** separate guides size for a well pump, sump pump, furnace, fridge and freezer, medical devices, and each kind of unit.

★ Not sure which guide to open first?

Tell me a little about your home and what worries you most, and I'll point you to the right starting place. Call or text me at (330) 200-8042.

Two kinds of homes, two sets of needs

Load planning starts the same way for everyone — with a list — but what lands on that list, and how big a job it becomes, depends a great deal on where you live and whether a well pump is in the picture.

If you live in town or the suburbs

In town or a tighter suburban lot, your must-run list tends to be shorter and lighter. City water keeps flowing no matter what the power does, so there's no pump to plan around, and the biggest motor on your list is usually just the fridge or a window air conditioner.

- Your list often starts with the fridge, a few lights, the internet box, and phone chargers.
- The biggest surge to plan around is commonly the fridge or an air conditioner — not an alarming number.
- A modest unit and a few cords will often cover the essentials; our essentials-vs-whole-home guide helps you decide.
- Our guide on choosing a portable generator helps match your list to the right size class.

If you are out in the country on a well

Out in the country on a private well, load planning has one loud headline from the very start: the well pump. A 240-volt submersible pump is a serious motor, and it usually has to be on the list — when the power stops, the water stops too, for drinking, cooking, flushing, and animals.

- The pump's starting surge is very likely the single biggest number on your whole list — you size around it.
- A 240-volt pump can't run off a plain cord; it needs a transfer switch or interlock and a unit with a 240-volt outlet.
- Your list also tends to add a sump pump, a chest freezer, and sometimes a septic pump — our well-and-septic guide covers the whole picture.
- Get the pump's real figures from its nameplate or your well company's horsepower — never a guess.

★ The well pump changes the whole plan

If you're on a well, tell me your pump's nameplate or horsepower along with your other must-run loads, and I'll help you see the whole picture before you shop. Call or text me at (330) 200-8042. Our guide on sizing for a well pump goes deeper.

What kind of unit are we sizing?

The four moves give you a number. That number then points toward a kind of machine — and each kind has its own guide.

A fuel-burning generator makes power as long as you feed it, and runs outdoors only. A battery or power station stores energy, makes no exhaust, and is safe indoors, but only lasts as long as its charge. Many homes end up with a bit of both — a quiet battery for the small, sensitive things and a generator for the heavy lifting.

You don't have to choose today. Our guides on portable generators, inverter generators, standby units, and batteries each take your number and help you match it to the right machine.

✓ The number comes first, the machine second

Land on how much and how long you need before you fall for any particular unit. A size that fits your list beats a machine that merely looks impressive on the shelf.

How big a goal: a few essentials or the whole house?

Before you size anything, it helps to decide how much of normal life you're trying to keep running.

At one end, a couple of cords keep the essentials alive — the fridge, some lights, a few chargers. In the middle, a transfer switch or interlock lets you run a chosen set of circuits. At the far end, a whole-home standby covers the house almost automatically. Each is a bigger, pricier ask than the last.

This choice sets your target number before you add a single watt. Most folks are well served by covering essentials. Our essentials-vs-whole-home guide walks through picking a scope.

✓ Scope first, size second

Deciding how much of the house to back up is the fork in the road that shapes everything after it — so it's worth settling early.

Where people go wrong at the start

A handful of early missteps cause most of the trouble. Knowing them now keeps you clear of them.

- **Shopping for a size first**, before making the must-run list that should decide it.
- **Trusting the big bold number on a box**, which is often the brief peak rather than the steady rating.
- **Forgetting the surge**, then wondering why the fridge won't start on a unit that seemed plenty big.
- **Answering how much but not how long**, and running out of fuel or charge partway through the night.
- **Guessing a number from an ad** instead of reading your own nameplates.

! The costliest early mistake is guessing

Almost every sizing regret traces back to a guess standing in for a real number. When the figures come from your own list and your own labels, the right size tends to take care of itself.

What you don't have to do

This is gentler than it may look. Let's clear away the parts you can safely let go of.

- ❑ You don't need a math degree — the arithmetic is addition, done in order.
- ❑ You don't need to memorize anything; keep this guide in a drawer and come back to it.
- ❑ You don't need any wattage in your head — the nameplates hold the real numbers.
- ❑ You don't need to power the whole house; most folks cover just the essentials.
- ❑ You don't have to do it alone — that's exactly what I'm here for.

✓ General ideas here, real numbers at home

These guides teach the method with plain, general ideas. The actual figures for your size come from your own appliances — and I'm glad to help you gather them.

A quick check: are you ready to size?

Run through these and you'll know whether you're ready for the worksheet or want a step or two first.

- ☐ Do I have a written must-run list, sorted into must, want, and skip?
- ☐ Have I found the nameplate on each motor-driven thing on the list?
- ☐ Do I know which single item has the biggest starting surge?
- ☐ Have I thought about how long an outage here usually lasts?
- ☐ Have I decided how much of the house I'm trying to cover?

✓ Any 'not yet' just points to your next guide

A blank on this list isn't a problem — it simply tells you which guide to open next, whether that's the must-run list, the nameplate guide, or the worksheet.

The few simple tools this takes

You very likely have everything you need already. Nothing fancy, nothing to buy.

- **A phone with a camera** for photographing every nameplate before you shop.
- **A notepad or this guide's margins** for your must-run list and your running total.
- **An appliance thermometer**, handy for the fridge and freezer so you can watch the temperature during an outage.
- **These guides**, kept together in a drawer with your home papers.

★ Send me the photos

Once you've snapped your nameplates, text them to me at (330) 200-8042 and I'll help you read the numbers off each one — free, no obligation.

When to bring in a pro early

Some of this is happily do-it-yourself; some calls for a licensed hand from the very beginning. Knowing which is which saves headaches.

Anything wired into your panel — a transfer switch, an interlock, a 240-volt well pump or central air — is a licensed electrician's job, and it's wise to plan the hookup and the size together. When your must-run list is heavy or the math sits near a line, a licensed electrician can do a proper load calculation and measure the real draw.

I'm a tech helper, not an electrician — so I help you build the list, read the nameplates, and then coordinate a trustworthy licensed pro for the wiring. Our guide on getting a professional load calculation covers when that's the right call.

★ I'll help line up the electrician

Coordinating the licensed electrician for panel work is part of what I do. Once you know your list, call or text me at (330) 200-8042 and we'll plan the whole thing together.

Questions worth asking yourself first

Before you shop or call anyone, these questions get you pointed in the right direction.

Q: What would I truly miss during an outage?

That answer is your must-run list. Keep it to what keeps you safe, fed, comfortable, and connected — the wants can wait until the musts are covered.

Q: How long do outages usually last where I live?

A few hours in town points one way; multi-day rural outages point another. It shapes how much fuel or stored energy you plan for, not just how much power at once.

Q: Is there a well pump or a medical device in the picture?

Either one raises the stakes and deserves special care. There's a dedicated guide for each, and both are worth planning conservatively.

Q: How much of the house am I really trying to keep running?

A few essentials, a set of circuits, or the whole home? That scope decision sets your target size before any adding begins.

✓ There's no silly question

If any of these are hard to answer, that's completely normal — call or text me at (330) 200-8042 and we'll work through them together.

Common Questions

The getting-started questions I hear most, answered plainly.

Q: Can't I just buy a big unit and skip all this?

You can, but you'll often pay for and haul around more machine than you need, and a big unit run lightly all the time isn't good for it. A size that fits your list is cheaper, lighter, and kinder to the engine.

Q: Do I need every appliance's exact numbers before I start?

No — start with the list. You gather the real numbers, from the nameplates, once you know what's on it. Our nameplate and worksheet guides walk you through that part.

Q: Is a battery or a generator better for me?

It depends on your list and how long your outages run. Batteries are quiet and safe indoors but last only as long as their charge; generators run as long as you feed them but must stay outdoors. Plenty of homes use both.

Q: What if my list has a well pump on it?

Then it likely sets your whole size, because a 240-volt pump's surge is large and it needs a transfer switch rather than a cord. Our well-pump sizing guide is the one to read next.

★ Still not sure where to begin?

That's the most normal thing in the world. Send me your rough list at (330) 200-8042 and we'll find your starting point together, at your pace.

Bringing it all together

You now have the whole map: four moves for how much, a second question for how long, and a deeper guide waiting behind each piece.

List what must stay on, add the running watts, add the single biggest surge, add a comfortable margin — then plan for how long as well as how much. That's load planning, start to finish, no matter the size of your home.

From here, wander into whichever guide calls to you — the must-run list, the nameplate, the worksheet, or a guide for your particular equipment. Take it one calm step at a time.

★ Let's take the first step together

If you'd rather start with a friendly conversation than a blank page, that's exactly what I'm here for. Call or text me at (330) 200-8042 with what you'd want to keep running — 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 load planning and knowing where to start 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 Four Moves of Load Planning

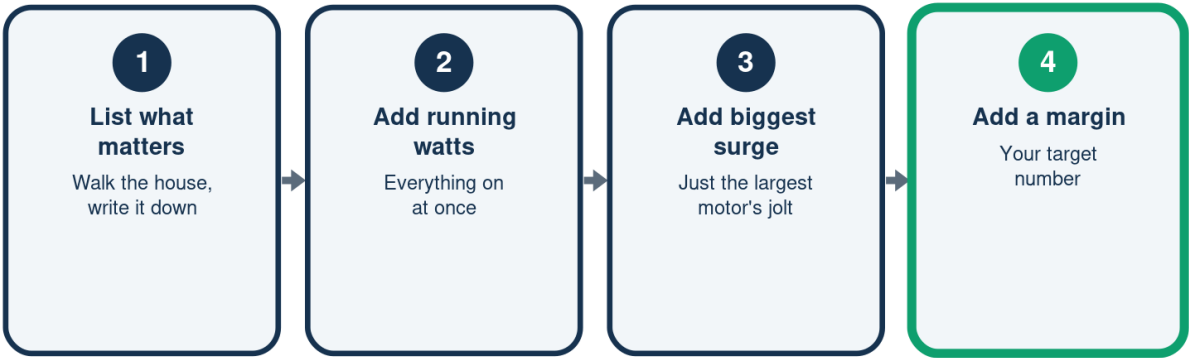
The calm, in-order way to size backup power

	What it is	Where to go deep
1. Your list	What must stay on	Must-run-list guide
2. Running watts	Steady total	Nameplate guide
3. Biggest surge	One motor's jolt	Running-watts guide
4. A margin	A little extra	Headroom guide

Four moves, in order -- and a deeper guide behind each one.

The Four Moves, In Order

Do them one at a time and the arithmetic stays simple



Then plan for how long it must last, not just how much at once.

How Much at Once vs. How Long

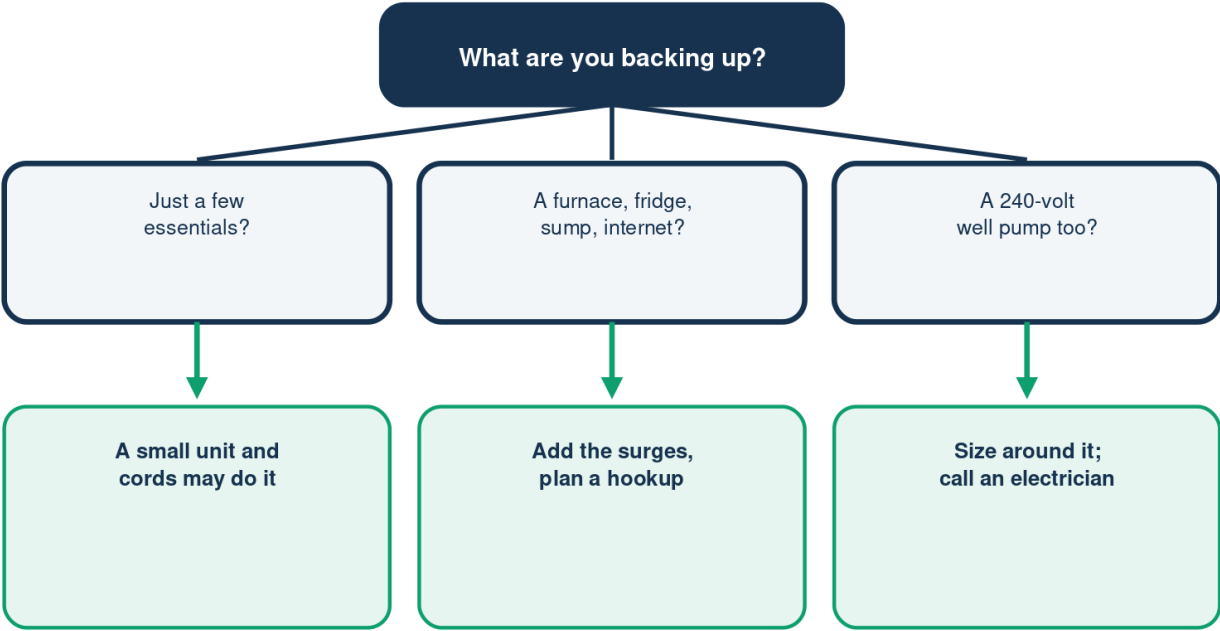
The two questions that size any unit

	What it measures	What sets it
Watts	How much at once	Your load total
Watt-hours / fuel	How long it lasts	Size of the tank
You size for both	Enough at once	Enough to last

A unit can have plenty of one and too little of the other.

Where Do You Start?

Let what you want to back up point the way



Not sure? Start the list -- the list decides the size.

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



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A Note From Bill

A quick note from Bill.

I write these guides to make home tech a little less frustrating, and I do my best to keep every step accurate and up to date. Still, every home, device, and setup is a bit different, so I can't promise a guide will match yours exactly or fix your particular problem. These guides are for general information only — they're not professional, legal, or financial advice, and they don't replace your device's own manual or the manufacturer's instructions. Please go slow, use your own good judgment, and use everything here at your own risk. If a step involves electrical wiring, a gas appliance, a water heater, plumbing, or climbing a ladder — or if anything just doesn't feel safe — please stop and call a licensed professional (or give me a call at 330-200-8042). Bill's Home Tech and Bill Davis can't be responsible for any damage, data loss, or injury that comes from using these guides. Thanks for reading, and stay safe out there.

— *Bill*



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