



An Extended Guide · No. 1616

Putting It All Together: Your Backup Power Sizing Plan

From a blank page to
a number you trust

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 capstone walks the whole journey in order — and sizing right is a safety matter, so every step here is aimed at a number you can trust rather than a lucky guess.

From a blank page to a number you trust

This is the guide that pulls the whole series together. If you've read the others, this is where they connect; if you're starting here, it's the map of the whole journey, one calm step at a time.

I'm Bill. Sizing backup power can feel like a mountain when you look at it all at once. But it isn't — it's a short walk taken in order: make a list, read some labels, do a little addition, and make a few plain choices. By the last page you'll have a number you can actually shop with.

I'll lay out every step and point you to the deeper guide for each one, so you can go as shallow or as deep as you like. You do not have to hold all of this in your head. That's what the pages — and the phone — are for.

★ Let's build your plan together

You don't have to do this alone. Jot down what you'd want to keep running and call or text me at (330) 200-8042, and we'll build your whole sizing plan side by side — free, with nothing to sell you.

The whole plan, on one page

If you remember only this page, you have the entire method in order.

- ❑ Make your must-run list — what has to stay on in an outage.
- ❑ Read the nameplates for the real numbers, and sort motors from steady loads.
- ❑ Add your running total plus the single biggest surge.
- ❑ Decide essentials or whole-home, then pick the equipment and the hookup.
- ❑ Add a comfortable margin, and plan how long — fuel or watt-hours plus a reserve.
- ❑ Handle the special cases — well pump, medical — and get a pro load calc if the job is big or wired-in.

✓ The one-sentence version

List it, read it, add running plus the biggest surge, choose your scope and gear, leave a margin, plan how long, and get help for the big pieces.

The whole journey, mapped

Here's the path from start to finish, with the guide that goes deeper on each step. Think of this guide as the hub.

- **Steps 1-3:** list it, read the nameplates, sort motors from steady loads (the must-run list, nameplate, and running-vs-starting guides).
- **Step 4:** add running watts plus the single biggest surge (the worksheet guide).
- **Steps 5-6:** choose essentials or whole-home, then the equipment and hookup (the essentials-vs-whole-home and transfer-switch guides).
- **Steps 7-8:** add a margin, then plan how long (the margin and the runtime guides).
- **Steps 9-10:** handle special cases, and get a pro calc if needed (the well-pump, medical, and pro-load-calc guides).

✓ Go as deep as you like

You can follow this guide straight through for the whole picture, or dip into a deeper guide wherever you want more. Every step here has one behind it.

Step 1: Make your must-run list

Everything starts here. Before a single number, decide what actually has to stay on.

Walk the house and sort what you'd want running into three buckets: **must** (safety, food, water, heat, medical, a way to reach the world), **want** (nice to have), and **skip** (can wait). You size for the musts; the wants you can run in turns.

This one step keeps your whole plan honest, because it stops you sizing for the entire house out of habit. Our guide on making your must-run list walks through it room by room, with the seasonal loads folks forget.

✓ **Musts first, everything else after**

A short, honest must-run list is the foundation of a right-sized plan. Get this right and every later step gets easier.

Step 2: Read the nameplates

Now put real numbers to your list, straight from the source.

Every appliance carries its true figures on a small label — the nameplate — usually on the back, the bottom, or inside a door. Look for watts; if you see only volts and amps, multiply them together for the running watts. This is where guessing ends and a trustworthy number begins.

A motor's plate may also show a starting or 'LRA' figure — your clue to its surge. Our guide on reading a nameplate shows you exactly where each label hides and what every marking means.

★ Photograph every label

Walk around with your phone and snap the nameplate on the fridge, the furnace blower, the pump, and the rest. Text them to me at (330) 200-8042 and I'll help you read them — free.

Step 3: Sort motors from steady loads

With your numbers in hand, split the list into two kinds of loads.

Anything with a motor or compressor — fridge, freezer, well pump, sump pump, furnace blower, air conditioner — **surges**: it needs a brief, much bigger jolt to get going. Everything that just makes heat or light — lamps, heaters, chargers, most electronics — draws a steady amount with no real surge.

This sort is what makes the arithmetic work, because motors and steady loads get added differently. Our running-watts-versus-starting guide explains the two-number idea that all of sizing rests on.

✓ When in doubt, assume it surges

If you're not sure whether something has a motor tucked inside, treat it as if it surges. Planning for a surge that doesn't come costs you nothing; missing a real one causes trouble.

Step 4: Add it up

Here's the heart of the whole thing — and it's simpler than it sounds.

Add the **running watts** of everything you'll run at once into one steady total. Then add just the **single biggest surge** among your motors on top. You add only the biggest because motors essentially never start at the same instant.

That's it: running total plus the one largest surge. Our worksheet guide gives you a fill-in-the-blanks page to do it with your own nameplates, and I'm always glad to check the addition with you.

✓ Only the biggest surge

A longer list doesn't usually mean a bigger surge number — only the largest single jolt counts. That keeps your number from spiraling as the list grows.

Step 5: Essentials, or whole-home?

Now a big-picture choice that shapes everything that follows: how much do you want to cover?

There's a ladder of goals. At the bottom, **cords to a few essentials** from a portable unit. In the middle, a **chosen set of circuits** through a transfer switch. At the top, **whole-home coverage**, usually with a standby unit. Each rung asks for more unit and more wiring.

Your scope sets your target, so it's worth deciding on purpose rather than by drift. Our guide on essentials versus whole-home walks through the trade-offs so you can pick the rung that fits your home and your budget.

✓ Match the goal to the need

There's no single right answer — only the right one for you. A modest goal, well sized, beats an ambitious one you never quite finish.

Step 6: Pick the equipment and the hookup

With a number and a scope, you can choose the kind of unit and how it connects.

Match your number to a type: a **portable generator** for cords to essentials, a quieter **inverter generator** with cleaner power, a **battery or power station** that's safe indoors and silent, or a permanently installed **standby unit** for whole-home coverage. Each has its own sizing guide in this series.

Then the hookup. Cords are fine for plug-in essentials; anything hardwired or 240-volt, like a well pump, needs a transfer switch or interlock at your panel. Our guide on your transfer switch's circuit count covers how the backed-up circuits shape the size.

! Never back-feed the panel

Never connect a generator through a dryer outlet or a double-ended cord — it can electrocute a lineman and start a fire. A transfer switch or interlock, installed by a licensed electrician, is the only safe way. I'll line one up for you.

Step 7: Add a margin

Don't size right to your number — leave yourself a little room.

A unit run flat-out is a strained, unhappy unit: it runs hot, works hard, and stumbles the moment anything extra comes on. A comfortable cushion above your calculated number keeps everything running easily and leaves something in reserve.

But don't massively oversize either — too big costs more, weighs more, and drinks more fuel. Sensible headroom, not the biggest unit on the lot. Our guide on margin and headroom explains how much cushion is right, and how heat and long cords quietly eat into it.

✓ A cushion, not a ceiling

Aim to run comfortably below the unit's rating, with room for the day you add one more thing. That reserve is what makes a plan feel calm instead of stretched.

Two kinds of homes, two sets of needs

The same ten steps produce a very different plan in town than out on a well. Here are two sketches side by side, so you can see yours taking shape.

If you live in town or the suburbs

A town or suburban plan is usually the lighter one. City water keeps flowing, so there's no well pump to size around, and the biggest surge is often just the fridge or a window air conditioner.

- Must-run list: fridge, a few lights, the internet, phone chargers, maybe a furnace blower.
- Biggest surge: usually the fridge or an air conditioner — a modest number.
- Equipment: often a portable or inverter unit with cords, or a power station for the desk.
- Runtime: often a matter of hours, so a smaller fuel or energy reserve does the job.

If you are out in the country on a well

A rural plan on a well centers on the pump and a longer outage. The well pump is a 240-volt motor with the biggest surge on the property, and no power means no water at all.

- Must-run list: the well pump first, then the freezer, furnace blower, sump pump, and maybe a septic pump.
- Biggest surge: almost always the well pump — size the whole plan around it, with generous headroom.
- Equipment: a unit with a 240-volt outlet and a transfer switch, and stored water as a backstop.
- Runtime: plan for days, not hours, since rural outages run longer. Our well-pump surge guide goes deeper.

★ Let's sketch your plan, town or country

Tell me where you live and what's on your list, and I'll help you turn these sketches into your own plan. Call (330) 200-8042. Our well-pump surge guide covers the rural centerpiece in depth.

Step 8: Plan how long

Sizing for how much is only half the plan. Now size for how long.

A unit big enough to run your list still needs the fuel or stored energy to keep going for the length of the outage. Lighter loads run longer — an inverter throttles down, and a battery's watt-hours stretch further. Plan fuel or watt-hours for the expected outage plus a reserve, and store fuel safely.

For a battery or power station, remember the two numbers are different: **watts** is how much it delivers at once, **watt-hours** is how long it lasts. Our guide on sizing for how long covers runtime and fuel, and our guide on watts versus watt-hours untangles the battery side.

✓ How much and how long are two questions

Answer both. A unit can be strong enough for your list but out of fuel by morning, or last for days but too weak for the pump. You size for each.

Step 9: Handle the special cases

A couple of loads deserve extra care, because getting them wrong carries a real cost.

The **well pump** is the big one on a rural plan — a 240-volt motor with the biggest surge in the house, needing a transfer switch and generous headroom. Our well-pump surge guide covers it in full, and our guide on a well-and-septic property pulls the whole rural picture together.

Medical equipment — a CPAP, an oxygen concentrator, a medication fridge — deserves gentle, careful planning. Treat backup power as one layer, not the whole plan: keep manufacturer-approved battery backups, register with your utility's medical list, and make the plan with your equipment supplier and doctor.

! For medical devices, plan with your suppliers

Size conservatively, prefer clean inverter power, and keep backups charged and, for oxygen, backup tanks on hand. If equipment fails and someone has trouble breathing, chest pain, or confusion, call 911. I help set up and test the plan — I don't give medical advice. Our guide on medical devices covers it with care.

Step 10: Get a pro calc if you need one

The last step is knowing when to hand the numbers to a licensed professional.

Do-it-yourself sizing is plenty for a few plug-in essentials. But for whole-home coverage, a standby unit, hardwired 240-volt loads, or math that sits near a line, get a licensed electrician's load calculation — and let them measure the real draw with a clamp meter for the tricky loads.

Our guide on when to get a professional load calculation walks through exactly when it's worth it and what to bring. I help you gather your list and nameplates, then coordinate and line up the licensed electrician — I don't do the licensed work myself.

★ I'll get you ready and line up the pro

When a job crosses into licensed territory, I make sure you and the electrician are on the same page. Call or text me at (330) 200-8042 to get started.

Your sizing plan checklist

Here's the whole plan as a checklist you can tick off. When every box is checked, you have a number you can trust.

- ☐ I've made my must-run list — must, want, skip.
- ☐ I've read the nameplates and sorted motors from steady loads.
- ☐ I've added my running total plus the single biggest surge.
- ☐ I've chosen essentials or whole-home, and the equipment and hookup.
- ☐ I've added a comfortable margin.
- ☐ I've planned how long — fuel or watt-hours plus a reserve.
- ☐ I've handled the special cases and decided about a pro load calc.

✓ Every box has a guide behind it

If any box is hard to check, that's the guide to read next — or the reason to give me a call.

Keep your plan where you'll find it

A plan you can't find in an outage isn't much help. So let's put it somewhere sensible.

Write your plan down — your must-run list, your nameplate photos, your running total and biggest surge, your chosen unit, and your hookup — and keep it in a drawer with your other home papers, or a folder on your phone. A copy near the generator or the panel helps too.

Revisit it when something big changes: a new well pump, an addition, a medical device, a new freezer. Our worksheet guide is a good place to keep the running record, and it makes updating easy.

✓ A living plan, not a one-time chore

Homes change, and so do their needs. A plan you glance at once a year stays useful for years.

How I help at every step

You never have to walk this alone. Here's where I fit in, from the first list to the finished plan.

- **The list and the labels:** I'll help you build the must-run list and photograph and read every nameplate.
- **The arithmetic:** I'll sit with you and add the running total plus the biggest surge, and check your margin.
- **The choices:** I'll talk through essentials versus whole-home, the kind of unit, and how long you need.
- **The handoff:** I'll coordinate and line up a trustworthy licensed electrician for panel work and 240-volt loads.

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, and I sell no equipment and earn no commission.

★ Real help, close to home

Whatever step you're on, I'm one call away. Reach me at (330) 200-8042 and we'll pick up right where you are — no rush, no jargon, no silly questions.

Common Questions

The put-it-all-together questions I hear most often, answered plainly.

Q: Where do I even start?

With your must-run list — what has to stay on in an outage. Everything else in the plan builds on it, so it's always the first step. Our guide on making your must-run list walks you through it.

Q: What's the core arithmetic, in one line?

Add the running watts of everything on at once, add the single biggest motor's surge on top, then add a comfortable margin. That's your shopping number.

Q: How is a rural plan different from a town one?

A rural plan centers on the well pump — a big 240-volt surge and the top of the list — and plans for a longer outage. A town plan is usually lighter, with the fridge or air conditioner as the biggest surge.

Q: Do I need a pro, or can I do this myself?

Size it yourself for a few plug-in essentials. Get a licensed electrician's load calculation for whole-home coverage, a standby unit, or hardwired 240-volt loads. Our pro-load-calc guide covers the line.

Q: This still feels like a lot. Can you just help me?

Of course — that's what I'm here for. We'll build your plan together, one step at a time, at your pace. Nobody expects you to memorize any of this.

★ Ready to build your plan?

Send me your list and your nameplate photos at (330) 200-8042, and we'll turn them into a number you can trust, together.

A quick self-check at your kitchen table

You can pressure-test your finished plan in about a minute with these questions.

- ☐ Do I have a written must-run list, sorted into must, want, and skip?
- ☐ Do I know my running total and my single biggest surge, from nameplates?
- ☐ Have I chosen my scope, my equipment, my hookup, and left a margin?
- ☐ Have I planned how long, with fuel or watt-hours plus a reserve?
- ☐ Have I handled the well pump, any medical device, and the pro question?

✓ 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.

Why this gives you a number you can trust

It's worth pausing on why this method works, so you can rely on your own answer.

Your number is trustworthy because it comes from your own nameplates, not from an ad or a guess; because it adds the loads the right way — running total plus the single biggest surge; and because it leaves a margin instead of sitting on the edge. Every step removes a place where a plan usually goes wrong.

That's the quiet confidence this series is really about. Not a bigger unit than everyone else's, but the right one for your home — sized on purpose, for reasons you understand and can explain.

✓ Confidence comes from the method

You don't need to be an engineer. You need a list, a few labels, and the steps in order. Follow them and the number is yours to trust.

You can do this

You've walked the whole journey now — from a blank page to a plan. That's the hard part, and you've done it.

List it, read it, add running plus the biggest surge, choose your scope and gear, leave a margin, plan how long, and get help for the big pieces. Ten steps, taken calmly in order, turn a mountain into a short walk. You are more ready than you think.

Keep this guide with your home papers as your map, and reach for the deeper guides — the must-run list, the nameplate, the worksheet, the well-pump, and the rest — whenever you want more. They're all here waiting, and so am I.

★ Let's finish your plan together

If you'd rather build it with a hand than on your own, that's exactly what I'm here for. Call or text me at (330) 200-8042 with your list, and we'll make quick, calm sense of it — 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 putting together your whole backup power sizing plan 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.

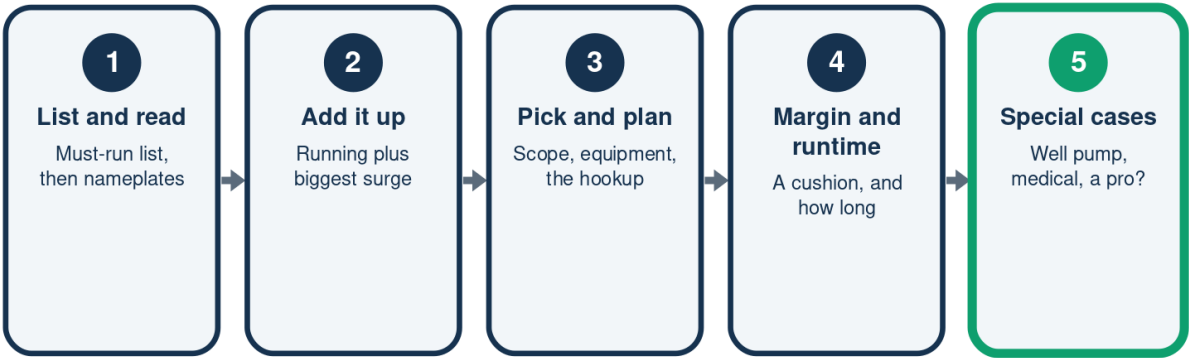
When you'd rather have a hand, that's exactly what I do. I come to your home, work at your pace, and never make you feel rushed or silly for asking. A first visit is a flat \$99, and for the parts that don't need me on-site I can often help right on your screen for \$49. Every visit comes with a 30-day, 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

Your Sizing Plan, Start to Finish

The whole journey in five moves



Ten steps, taken in order, turn a mountain into a short walk.

Each Step, and the Guide That Helps

This capstone is the hub; each guide is the depth

	The step	The guide
Your list	What must stay on	Must-run list guide
The numbers	Running + surge	Worksheet guide
How big	Essentials or all	Whole-home guide
How long	Runtime and fuel	Runtime guide

Dip into any guide for more; come back here for the whole picture.

A Town Plan vs. a Rural Plan

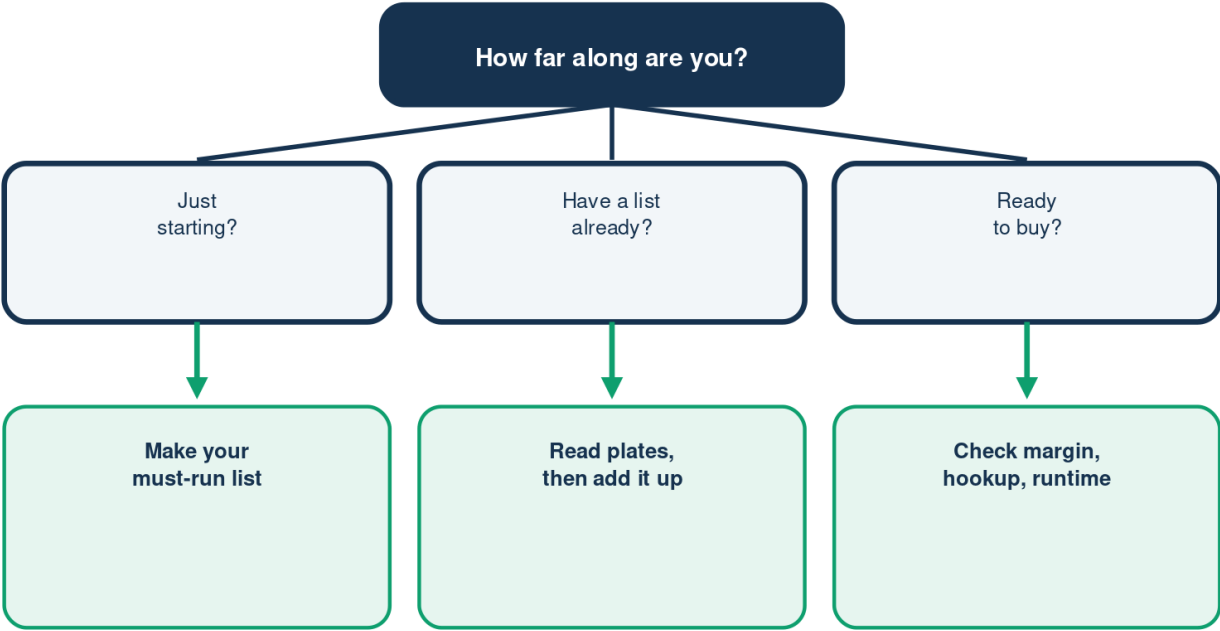
The same steps, two very different plans

	In town	Out on a well
Biggest surge	Fridge or AC	The well pump
Water	City water	Store water too
Runtime	Often hours	Plan for days
Hookup	Often cords	240V and a switch

A rural plan centers on the well pump and a longer outage.

Where Are You Right Now?

Your next step depends on how far along you are



Not sure? Start with the must-run list -- everything else builds on it.

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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— Bill

Prefer help without a visit?

Bill can screen-share and fix many things remotely — a flat \$49, free for Support Plan members.



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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