



An Extended Guide · No. 1615

When to Get a Professional Load Calculation

When to hand the numbers
to a licensed pro

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. For the biggest jobs — whole-home coverage, a standby unit, or a 240-volt load like a well pump — a licensed electrician's load calculation turns a careful estimate into a measured number you can trust, and that's a safety matter as much as a comfort one.

When to hand the numbers to a licensed pro

A lot of backup-power sizing you can do yourself at the kitchen table. But some jobs are big enough, or wired-in enough, that they deserve a licensed electrician's load calculation. This guide helps you know which is which.

I'm Bill. My honest advice is to do the sizing yourself when it's simple — a few essentials on cords, a power station for the desk — and bring in a pro when the job gets large or touches your electrical panel. There's no sense paying for a calculation you don't need, and no sense guessing on one you do.

I'll show you where that line sits, what a professional load calculation actually is, and what to bring so the visit goes quickly. I'm a tech helper, not an electrician — so my part is helping you get ready and lining up a trustworthy pro for the licensed work.

★ Not sure which side of the line you're on?

Tell me what you want to back up and call or text me at (330) 200-8042. I'll help you judge whether it's a do-it-yourself job or a pro one — free, with nothing to sell you.

The whole idea, on one page

If you remember only this page, you'll know when to size it yourself and when to call a pro.

- ❑ Do-it-yourself sizing is plenty for a few essentials on cords or a power station for the desk.
- ❑ Get a licensed electrician's load calculation for whole-home coverage, a standby unit, or hardwired 240-volt loads.
- ❑ The well pump alone is a strong reason to get a pro — it's a big 240-volt surge.
- ❑ A pro uses the NEC's standard method and can measure real draw with a clamp meter — more accurate than adding nameplate numbers.
- ❑ Bring your must-run list and nameplate photos; I'll help you gather them.
- ❑ When your math sits near a line between two sizes, a measured number is worth it.

✓ The one-sentence version

Size it yourself when it's small and plug-in simple; get a licensed electrician's load calculation when it's whole-home, wired-in, or too close to call.

The good news: much of this you can do yourself

Before we talk about calling a pro, let's be clear about how much you can handle on your own.

For a modest plan — keep the fridge cold, charge phones, run a lamp and the internet, maybe a space heater — the method in our other guides is all you need. Read the nameplates, add the running total plus the single biggest surge, leave a margin, and you have a number you can shop with.

That's genuinely enough for a great many homes. Our worksheet guide gives you a fill-in-the-blanks page to do it, and I'm glad to sit with you and check the arithmetic. You don't need to pay a professional to size a handful of plug-in essentials.

✓ Simple and plug-in? Do it yourself

If everything you want to back up plugs into a normal outlet and your list is short, the do-it-yourself method has you covered. Save the pro for the bigger jobs.

When do-it-yourself sizing is plenty

Here are the situations where you can confidently size it yourself.

- **A few essentials on cords:** a fridge, a couple of lamps, chargers, the internet box — all plugged into a portable unit.
- **A power station for the desk:** keeping a computer, modem, and phone going for hours, with no wiring involved.
- **A single window air conditioner or space heater** run on its own circuit through a cord.
- **A short, clear list** where the numbers add up well below any unit's rating, with room to spare.

In all of these, nothing is hardwired, nothing is 240 volts, and your total sits comfortably under the unit's rating. That's the do-it-yourself zone, and our guides on reading a nameplate and the worksheet will carry you through it.

★ I can help on your screen for the simple ones

For a short plug-in list, I can often walk you through the sizing right on your screen for \$49 — no visit needed. Call or text me at (330) 200-8042 to set it up.

When it's time to call a pro

Some jobs are bigger than a cord and a calculator. These are the clear signs it's time for a licensed electrician's load calculation.

- **Whole-home coverage:** you want most of the house on backup, not just a few essentials.
- **A standby generator:** a permanently installed unit that starts itself — always a pro's design.
- **Hardwired 240-volt loads:** a well pump, central air, an electric water heater, a range — none can be cord-fed.
- **Anything at the panel:** a transfer switch or interlock is a licensed electrician's install.
- **Your math sits near a line:** when you're right between two sizes, a measured number settles it.
- **You're simply unsure:** when the stakes feel high and the numbers feel shaky, that's reason enough.

✓ Big, wired-in, or too close to call

If a job is whole-home, hardwired, 240-volt, or right on the line, it's worth a pro's load calculation. That's not overkill — it's how you avoid an expensive wrong guess.

What a professional load calculation actually is

The phrase sounds technical, but the idea is simple and reassuring.

A licensed electrician follows a standard, recognized method — the one written into the National Electrical Code, the NEC — to work out how much power your home or your chosen circuits really need. It's the same kind of calculation used when a home's electrical service is planned, done properly and to code.

The result is a number you can size a generator or standby unit against with real confidence, because it comes from a tested method rather than a rough tally. For a whole-home plan or a standby unit, this is the professional foundation the whole design rests on.

✓ A recognized method, not a guess

The value of a pro calc is that it's standardized and to code. You're not trusting one person's hunch — you're trusting a method the whole trade uses.

The clamp meter: measuring the real draw

Here's the part that makes a pro's number better than yours or mine could be with labels alone.

A licensed electrician can put a tool called a clamp meter around a wire and measure the actual current a load draws — including the real starting surge of a motor as it kicks on. That's a live measurement of what's truly happening, not an estimate from a printed label.

For a motor like a well pump, where the starting surge is the make-or-break number, a measured figure can be far more useful than the nameplate. It turns 'about this much' into 'exactly this much,' which is just what you want when the stakes are high.

✓ Measured beats estimated for the tricky loads

Nameplates are perfect for a first pass. But for a big motor or a whole-home plan, a clamp-meter reading of the real draw is the gold standard.

Why a measured number beats an added-up one

Adding nameplate numbers is a fine way to start, but it has real limits that a measurement doesn't.

When you add up nameplate figures, you're adding the most a thing could draw, item by item — which tends to pile up higher than what actually happens, because things rarely all pull their maximum at the same moment. A careful estimate is a good servant, but it can send you toward a bigger unit than you need, or hide a surge you missed.

A clamp-meter reading captures the real behavior — what your home actually draws, and how a motor really surges. For a whole-home or standby plan, that accuracy is worth paying a professional for. Our guide on essentials versus whole-home helps you decide how big a goal you're sizing for in the first place.

✓ Two tools, two jobs

Use nameplate math to plan and to shop for the simple stuff. Use a pro's measurement when the plan is large or the margin is thin.

What to bring the pro

A little preparation makes the electrician's visit faster, smoother, and easier on your wallet.

- **Your must-run list:** what you need on during an outage, sorted into must, want, and skip.
- **Nameplate photos:** clear pictures of the labels on the fridge, freezer, furnace blower, well pump, and the rest.
- **Your well pump's details:** its horsepower or nameplate and its voltage, from the plate or the well company.
- **Notes on what runs together:** which big loads tend to be on at the same time.

The more of this you have ready, the less time the pro spends hunting, and the more accurate the calculation. Our guides on making your must-run list and reading a nameplate walk you through gathering it all.

★ I'll help you gather everything first

This is exactly the part I love: I'll come help you build the list and photograph every nameplate, so you hand the electrician a tidy packet. Call or text me at (330) 200-8042.

How I help — and where I hand off

Let me be plain about what I do and what I don't, so you know exactly what to expect.

I help you build your must-run list, read and photograph your nameplates, do the first-pass sizing at your kitchen table, and get you ready for the pro. Then I coordinate and line you up with a trustworthy licensed electrician for the load calculation and any panel or 240-volt work.

What I don't do is the licensed electrical work itself — I'm a tech helper, not an electrician. That's not a limitation to work around; it's how you get the right person doing the right job, with me making sure nothing falls through the cracks.

★ Your guide through the whole thing

Think of me as the person who gets you and the electrician on the same page. A first visit is a flat \$99, and for the simple parts I can often help on your screen. Call or text (330) 200-8042.

Two kinds of homes, two sets of needs

When a pro load calculation is worth it looks a little different in town than out on a well — though a well pump tips the scales toward a pro either way.

If you live in town or the suburbs

In town or a close-in suburb, do-it-yourself sizing covers most modest plans. You'd reach for a pro mainly when you want whole-home coverage, a standby unit, or any work at the panel, like a transfer switch.

- For a few plug-in essentials, size it yourself — no pro calc needed.
- For a standby generator or a whole-home plan, get a licensed electrician's load calculation.
- Any transfer switch or interlock is a pro's install, so the calculation often comes bundled with it.
- If you're on city water, there's no well-pump surge to complicate things — a real simplification.

If you are out in the country on a well

Out on a well, the case for a pro is stronger. A 240-volt well pump, possibly a septic pump, and long-outage planning stack up into exactly the kind of picture a professional measurement handles best.

- The well pump's big 240-volt surge is a strong reason to get a measured number rather than a guess.
- A pro can clamp-meter the pump's real starting draw — the hardest number to pin down from a label.
- The combined well, septic, and 240-volt picture is well worth a load calculation, especially before a standby unit.
- Plan for a long outage too; rural outages run longer. Our well-pump surge guide covers the pump in depth.

★ The well pump usually tips it toward a pro

If a 240-volt well pump is on your list, a measured load calculation is often worth it. Tell me your setup at (330) 200-8042 and I'll help you decide, then line up the licensed electrician. Our well-pump surge guide goes deeper.

The well pump makes the case for a pro

If any single load argues for a professional's number, it's the well pump.

A 240-volt well pump has a big starting surge — often around three times its running watts — and it's usually the make-or-break item on a rural plan. Getting that surge number right matters, and the pump is exactly the kind of motor a clamp-meter reading captures better than any label.

The pump also needs a transfer switch or interlock and a 240-volt outlet, which is licensed work anyway. So a pro is often in the picture already — having them measure and calculate while they're there is sensible. Our well-pump surge guide covers the pump itself.

! Don't guess low on the pump

An undersized unit can't deliver the pump's jolt, so the motor hums, strains, and can be damaged. This is precisely where a measured number earns its keep — when in doubt, get the pro's reading.

Whole-home and standby units need a design

The biggest plans aren't just sized — they're designed, and that design is a licensed electrician's job.

A permanently installed standby generator, and any plan meant to cover most of the house, rests on a proper load calculation. The electrician also designs how the loads are handled — often with load management, which staggers big loads like central air and the water heater so a smaller standby can serve a bigger house.

That's real engineering, done to code, and it's not a do-it-yourself job. Our guide on sizing a standby generator with load management explains the design side, and our guide on your transfer switch's circuit count covers how the backed-up circuits shape the size.

✓ Bigger goal, bigger reason for a pro

The more of your home you want covered, the more a professional load calculation pays for itself — both in getting the size right and in designing how the loads share the unit.

When your math sits near a line

Sometimes the do-it-yourself number lands right between two sizes, and that's a moment to get a measurement.

If your tally comes out close to a unit's rating — just under, or just over — a small error in your estimate could push you to the wrong side. That's uncomfortable, because sizing too small strains the unit and sizing too big wastes money and fuel.

A pro's measured number settles it. Rather than agonize over a borderline estimate, a clamp-meter reading tells you which size you actually need. Our guide on margin and headroom explains why you never want to land right at the edge in the first place.

✓ **Borderline is a reason to measure**

When two sizes both seem possible and you can't tell which is right, that's the clearest signal that a measured number is worth the trip.

Getting more than one quote is smart

When licensed work is involved, a little comparison shopping protects you.

For a standby unit, a transfer switch, or any sizable job, it's wise to get more than one licensed electrician's proposal. You're comparing not just the price but the approach — how they'd size it, how they'd handle the loads, and how clearly they explain it.

A good pro will walk you through their load calculation in plain terms and answer your questions without rushing. If someone won't, that tells you something too. I can help you read the proposals side by side so you're comparing like with like.

★ I'll help you compare, not just collect

Bring me the proposals and I'll help you understand what each one actually includes, so you can choose with confidence. Call or text (330) 200-8042 — I earn no commission and sell no equipment.

Questions worth asking the electrician

These help you tell a careful pro from a hurried one, and get the number you came for.

- Will you do a proper load calculation, and can you walk me through it?
- Can you measure my well pump's real starting draw with a clamp meter?
- Are we sizing for whole-home coverage or a chosen set of circuits?
- Would load management let a smaller unit serve more of my house?
- What permit is needed, and is it included?

✓ A good pro welcomes the questions

None of these should ruffle a professional. A pro who explains gladly is the one you want. If the answers feel evasive, keep looking.

Common Questions

The when-to-call-a-pro questions I hear most often, answered plainly.

Q: Do I really need a professional load calculation?

Not for a few plug-in essentials — you can size those yourself. You do want one for whole-home coverage, a standby unit, hardwired 240-volt loads, or when your math sits near a line between two sizes.

Q: What is a load calculation, exactly?

It's a standard, recognized method — the one in the National Electrical Code — that a licensed electrician uses to work out how much power your home or chosen circuits really need, done to code.

Q: Why is a clamp-meter reading better than adding up nameplates?

Adding nameplates gives the most each item could draw, which piles up higher than reality. A clamp meter measures the actual draw, including a motor's real starting surge — far more accurate for the tricky loads.

Q: What should I have ready for the electrician?

Your must-run list and clear photos of every nameplate, plus your well pump's horsepower and voltage. I'm glad to help you gather all of it before the visit.

Q: Do you do the load calculation yourself, Bill?

No — I'm a tech helper, not a licensed electrician. I build your list, read your nameplates, and get you ready, then coordinate and line you up with a trustworthy licensed pro for the calculation and the wiring.

★ Still weighing DIY against a pro?

Send me your list and your plan at (330) 200-8042, and we'll decide together whether this one's a kitchen-table job or a pro one.

A quick self-check: DIY or pro?

Run through these and the answer usually becomes clear.

- ☐ Is everything I want to back up plug-in, or is something hardwired?
- ☐ Is anything 240 volts, like a well pump, central air, or a range?
- ☐ Am I covering a few essentials, or most of the house?
- ☐ Does my number sit comfortably under a size, or right on a line?
- ☐ Am I confident in my estimate, or would a measured number ease my mind?

✓ Any 'hardwired,' '240 volts,' or 'whole-home'? Call a pro

If you answered yes to the wired-in, 240-volt, or whole-home questions, a professional load calculation is the right next step. If it's all small and plug-in, size it yourself.

What you get, and how to use it

It helps to know what a good load calculation leaves you holding.

You come away with a trustworthy number — how much power your home or chosen circuits really need — and, for a standby or transfer-switch job, a design for how the loads are handled. That number is what you size the generator or standby unit against, with a sensible margin on top.

Keep the calculation with your home papers. If you add a big load later — a hot tub, an addition, a new well pump — it's the baseline you'll revisit. Our worksheet guide is a good companion for keeping your own running record alongside the pro's.

✓ A number to keep, not just to use once

A load calculation isn't a one-time receipt — it's a record of your home's real needs. File it where you'll find it again.

The cost, and the peace of mind

It's fair to wonder whether a pro calculation is worth it. Here's how I'd weigh it.

A licensed electrician's load calculation is an added step, and I won't quote you a figure for it — that's the electrician's to give, and worth comparing across a couple of pros. What I can say is what it buys: a number you can trust, and protection against sizing a big, costly unit wrong.

For a small plug-in plan, that step would be money spent where you didn't need it. For a whole-home plan, a standby unit, or a well pump, it's cheap insurance against a far more expensive mistake. Match the effort to the stakes.

★ My part is the honest, no-commission guidance

I sell no equipment and earn no commission — just honest advice. A first visit is a flat \$99, and for the simple sizing I can often help on your screen. Call or text (330) 200-8042.

Bringing it all together

Knowing when to call a pro is its own kind of wisdom — it saves you money on the small jobs and saves you grief on the big ones.

Size it yourself when it's small and plug-in simple. Get a licensed electrician's load calculation when it's whole-home, standby, hardwired 240-volt, or too close to call — and lean on a clamp-meter measurement for the tricky loads like a well pump. Bring your list and your nameplates, and get more than one quote.

Our guide on essentials versus whole-home helps you set the goal, our well-pump surge guide covers the load that most often calls for a pro, and our worksheet guide gives you a place to keep your own numbers alongside the professional's.

★ Let's decide together, then line up the pro

If you'd rather talk it through than puzzle it out on paper, that's exactly what I'm here for. Call or text me at (330) 200-8042 and we'll figure out your next step — 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 deciding when to get a professional load calculation 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

Do It Yourself, or Call a Pro?

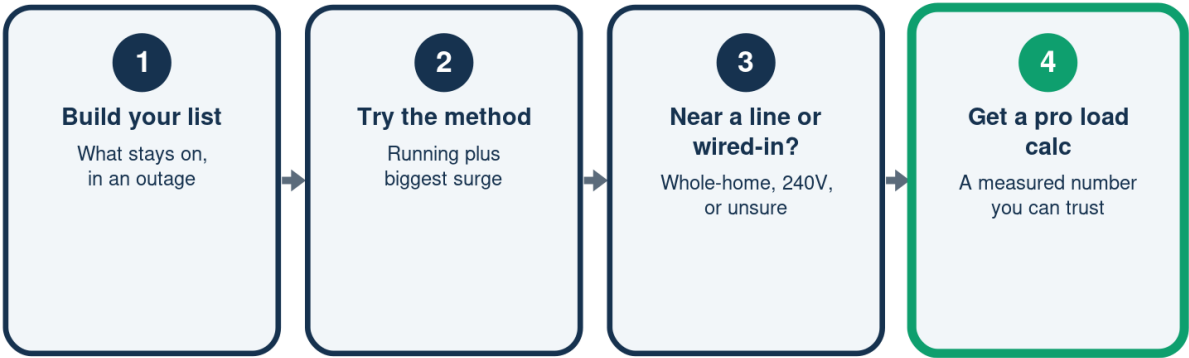
Match the effort to the size of the job

	DIY is plenty	Get a pro calc
Scale	A few essentials	The whole home
Hookup	Cords to plugs	Hardwired 240V
Equipment	Power station	Standby unit
The math	Clear and simple	Sits near a line

Small and plug-in? Do it yourself. Big or wired-in? Get a pro.

From Your List to a Pro Calc

When and how the pro comes in



Bring your list and nameplate photos to the electrician.

Nameplate Math vs. a Pro's Measurement

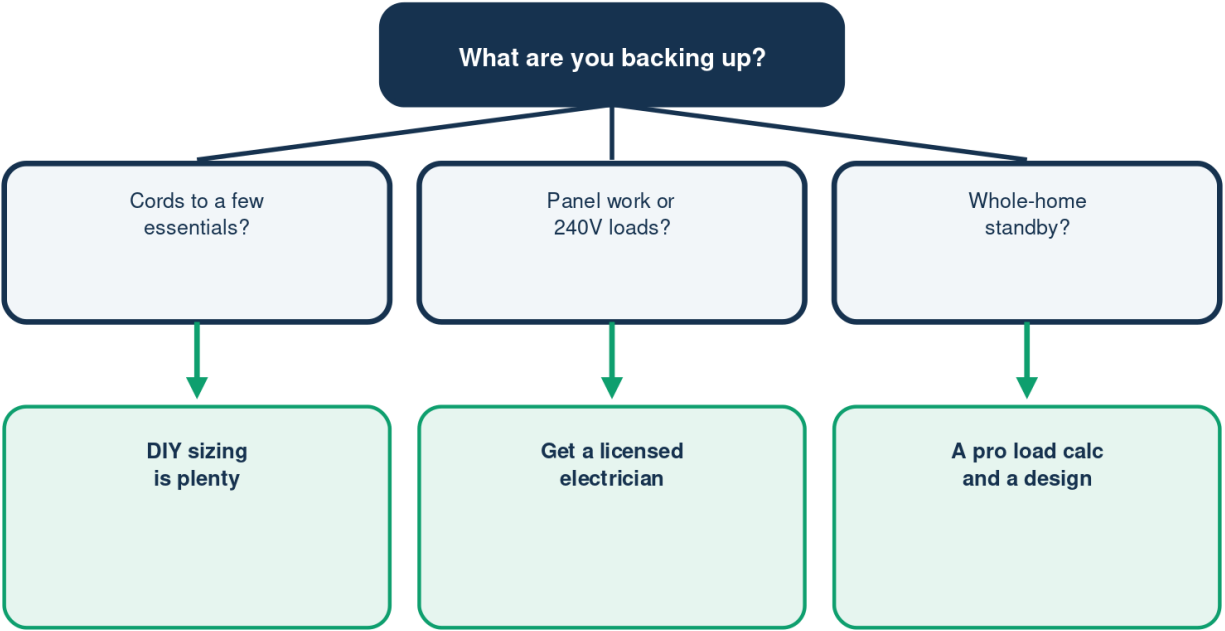
Two tools, two jobs

	Adding nameplates	Clamp-meter reading
How	Add label numbers	Measures real draw
Accuracy	A careful estimate	The actual amps
Best for	A short list	Whole-home, 240V
Who	You, or Bill helps	A licensed pro

Nameplates for planning; a measurement when the stakes are high.

What's Your Project?

Let the job point to the right help



Bill builds the list and gathers nameplates, then lines up the licensed electrician.

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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