BILL'S HOME TECH

Home & Small Business Tech Solutions

An Extended Guide · No. 1605

Sizing for a Home Office and Internet

Staying connected and working through an outage

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. Your desk gear draws little, and draws it steadily — so here the safety question is less about big numbers and more about giving sensitive electronics clean, steady power, and never running a generator indoors to keep the office online.

Staying connected when the power goes out

For a lot of folks, an outage isn't really about the lights — it's about staying reachable. The internet, a computer, a phone that stays charged. The good news is that a home office is one of the gentlest things you will ever size for.

I'm Bill. When someone tells me they work from home, or they just want the internet to stay up so they can check on family and reach the world, I start with the same reassurance: your desk asks for very little power, and it asks for it steadily. There's no big motor here to wrestle with.

What your desk does care about is the quality of the power, not the quantity. Computers, modems, and routers are fussy little things — they like clean, steady power and don't much like the rough kind. So this guide is really about two ideas: how little you need, and how to keep it clean.

★ Let's keep your desk online together

Tell me what's on your desk — the internet box, the computer, the phone — and call or text me at (330) 200-8042. I'll help you figure out how small a backup can be and still keep you connected, free, with nothing to sell you.

The whole idea, on one page

If you remember only this page, you already know how to keep your desk running through an outage.

- ❑ A modem, router, computer, monitor, and phone are small, steady electronic loads — no motor, so no starting surge to plan for.
- ❑ They are sensitive to rough power, so they prefer clean inverter power or a UPS — a battery backup.
- ❑ A UPS bridges the few seconds while a generator starts, and rides through dips so your computer never blinks off.
- ❑ A small power station is often plenty to run the internet and a laptop for hours — quiet, and safe indoors.
- ❑ Your internet provider's own equipment needs power too, and cable or fiber lines may stay up on the provider's backup for a while.
- ❑ Size for how long you need to stay online as much as for how much power the desk draws.

> **✔ The one-sentence version**
> A home office needs only a little power, but it wants that power clean and steady — so a UPS or a small power station is often a better first move than a big generator.

What's actually on your desk

Before you size anything, it helps to name the pieces. Most home offices come down to a short, familiar list.

- **The internet box:** your modem and router, or a combined unit — and on fiber, a small box on the wall called an ONT.
- **The computer:** a laptop, or a desktop tower with a separate monitor.
- **The phone:** a cordless house-phone base, or your cell phone and its charger.
- **The extras:** a printer, a desk lamp, external speakers, maybe a second screen.

Notice what's missing from that list: anything with a motor. There's no compressor, no pump, no fan straining to spin up. That's what makes the desk such a friendly thing to plan for — and it's the heart of the next page.

> **✔ Walk the desk with a notepad**
> Jot down each thing that plugs in, the way you would a grocery list. You don't need numbers yet — just the names. That list is the whole starting point.

Steady loads, with no surprising jolt

Most of this whole category is about the surprise jolt a motor needs to start. Your desk is the happy exception.

As our running-watts-versus-starting guide explains, anything with a motor — a fridge, a pump, a furnace blower — asks for a brief, much bigger jolt of power for a second or two when it first kicks on. That jolt, the starting surge, is what trips most people up when they size backup power.

Electronics don't do that. A modem, a router, a computer, a phone charger — they draw a small, steady amount from the moment you switch them on, and keep drawing about that same amount the whole time. There's no hidden jolt to plan around. Adding up a desk is just plain addition, start to finish.

> **✔ No motor means no surge**
> If the only motor near your desk is a little fan inside the computer, you can set the whole surge worry aside. The desk's steady number is very nearly its whole story.

Fussy about clean power, though

Here's the one way electronics are demanding: they care a great deal about the quality of the power they're fed.

Generators and inverters deliver their power as a wave. Clean, smooth power — often called pure sine wave or inverter power — looks like a gentle, even hill. Rougher, cheaper power looks jagged and blocky. Motors and heaters barely notice the difference, but sensitive electronics do.

Fed rough power, a computer or modem may act strangely, refuse to charge properly, buzz, or over time simply wear out sooner than it should. So for a desk, clean power isn't a luxury — it's the whole point. Our guide on sizing an inverter generator explains where that clean power comes from.

> **! Rough power can quietly harm electronics**
> This is the one real risk at the desk. Feeding a computer or modem rough, jagged power won't always fail on the spot — but it can shorten the life of gear you rely on. When electronics are involved, choose clean inverter power or run them through a UPS.

What a UPS does for you

A UPS — an uninterruptible power supply — is a small battery backup that sits between the wall and your gear. For a desk, it's often the single most useful piece.

Plug your modem, router, and computer into it, and it does three quiet jobs. It keeps them running for a few minutes when the power drops, so you never lose your work to a sudden blink. It smooths out dips and spikes. And when a generator is starting up, it bridges those few seconds before the power steadies.

That last part matters more than it sounds. A generator takes a moment to start and settle, and a computer plugged straight into it can blink off in the gap. A UPS carries the desk across that gap without a flicker, then hands the job back to the generator.

> **✔ Enough time to save and shut down**
> Even a modest UPS usually buys you enough minutes to finish a sentence, save your work, and shut the computer down properly — which is often all you really need from it.

A small power station is often plenty

If you want to keep working for hours, not just save your work, a small battery power station is frequently the perfect tool for a desk.

A power station is a battery in a box with ordinary outlets, and it makes clean power that electronics love. Because the desk draws so little, even a modest one can keep the internet and a laptop going for hours — quietly, with no fumes, safely indoors right there on the desk beside you.

The trick to sizing one is a pair of numbers our watts-versus-watt-hours guide walks through: the watts it can hand out at once (easy, since the desk is light) and the watt-hours it stores, which decide how many hours it lasts. For a desk, the how-long number is usually the one that matters.

> **★ I'll help you weigh a battery for the desk**
> A little power station is one of my favorite answers for keeping folks connected. Call or text me at (330) 200-8042 and I'll help you think through how many hours you'd want and how small a unit can deliver them.

Don't forget the internet company's end

Here's a wrinkle people miss: keeping your own gear powered is only half of staying online.

Your modem and router need power — but so does the equipment out on the line and back at the internet company. With cable or fiber service, the lines and neighborhood equipment often run on the provider's own backup batteries for a while, so your connection may hold as long as your own gear is powered. Other times it goes down no matter what you do at home.

This is worth knowing before an outage, not during one. It's also why a fully charged cell phone — and knowing how to use it as a hotspot — is such a good backstop. If the home internet drops, the cell network may still carry you.

> **✔ Have a second way online**
> Keep your phone charged and learn its hotspot feature before you need it. If the house connection fails, your phone can often still get you email, messages, and a way to reach family.

Adding up your desk's small number

Sizing the desk is the easiest arithmetic in this whole category — because there's no surge to wrestle with.

Find the little label — the nameplate — on each thing that plugs in, usually on the back or bottom or on the power brick. Look for watts. If you see only volts and amps, multiply them for the watts. Add those steady numbers together and you have your desk's whole appetite. Our guide on reading a nameplate shows you exactly where to look.

Then, as always in this category, add a comfortable margin on top so nothing runs right at the edge. But don't be surprised if your total is small — a desk usually is. That's good news: it means a modest, quiet, clean-power unit can carry it.

> **✔ Small total, same good habits**
> Even though the desk number is little, the method doesn't change: read the labels, add them up, add a margin, and never just guess. Small loads deserve honest numbers too.

Laptops make it easy; desktops want a UPS

The single biggest thing that decides how simple your desk is to back up is whether you work on a laptop or a desktop.

A laptop is its own little power plan. It carries a battery, sips very little, and keeps running when the wall power stops — so in a short outage you may not need to do anything at all but keep it charged. A tablet or a phone is the same idea, even smaller.

A desktop tower has no battery of its own, so it blinks off the instant the power drops, and you can lose whatever you were working on. That's exactly the gap a UPS fills: plug the tower and its monitor into one, and a sudden outage becomes a calm few minutes to save and shut down.

> **✔ A laptop is a backup plan in itself**
> For important tasks during storm season, a charged laptop plus your phone's hotspot is a remarkably sturdy little setup — no generator required for a short outage.

Two kinds of homes, two sets of needs

Keeping a desk online looks a little different depending on where you live — above all on whether a well pump is sharing your generator.

If you live in town or the suburbs

In a town or suburban home, the power tends to come back fairly soon and your internet usually rides on reliable cable or a strong cell signal. That makes the desk about the easiest thing there is to keep alive.

- A small battery or UPS can keep the desk online on its own — often no generator needed for a short outage.
- Your biggest question is how many hours you want, not how many watts; the desk draws little either way.
- A quiet power station on the desk keeps the internet and a laptop going with no fumes and no noise for close neighbors.
- If an outage stretches on, a small generator outside can recharge the battery between uses.

If you are out in the country on a well

Out in the country, two things change: your internet may come through gear that itself needs power, and outages tend to last longer. The desk is still tiny, but it now shares a generator with the real heavyweight — the well pump.

- Rural internet is often DSL, fixed-wireless, or satellite, each with its own powered box at the house that has to stay on.
- Your well pump is the big load and the desk is tiny, but they share one generator — size for the pump's big 240-volt surge first, and the desk fits easily underneath.
- Give the electronics clean power or a UPS even when the generator is really there for the pump and the fridge.
- Outages run longer out here, so plan to keep the desk online for days, not hours — a battery-plus-generator combo makes sense.

> **★ Town or country, the desk is the easy part**
> Whichever describes you, the desk gear is small — the real questions are how long you need to stay online and how to keep the power clean. Call or text me at (330) 200-8042 and we'll match a UPS, a battery, or a generator to your situation. Our guide on sizing for a well pump covers the big rural load.

The UPS-and-generator pairing

For a longer outage, the happiest home-office setup is often not one device but two working together.

A generator gives you long runtime but takes a moment to start, and its power can be rougher than electronics like. A UPS gives you clean, instant power but only for a few minutes. Put them together and each covers the other's weak spot: the UPS carries the desk through the start-up and any dips, while the generator supplies the hours.

This same clean-power thinking is exactly why our guide on sizing for medical devices leans on inverter power and a UPS — a CPAP or an oxygen concentrator wants steady, reliable power for the very same reasons a computer does. If someone in the home relies on such a device, treat that guide as the priority and the desk as the easy add-on.

> **✔ Let each device do what it's good at**
> The battery handles the instant and the clean; the generator handles the long haul. Neither has to be big when they share the work this way.

A surge protector is not a UPS

These two look a little alike — a strip of outlets you plug things into — but they do very different jobs, and folks mix them up all the time.

A surge protector guards your gear against a sudden spike, like the jolt that can ride in on the wires during a storm. That's useful, but it gives you no runtime at all — when the power stops, everything plugged into it stops too.

A UPS has a battery inside, so it keeps your gear running for a few minutes after the power drops. Many UPS units include surge protection as well, so you get both in one box. For staying online through the flicker while a generator starts, it's the UPS part that matters.

> **✔ When in doubt, look for the battery**
> If it has a battery inside and keeps things running after the lights go out, it's a UPS. If it just guards against spikes but dies with the power, it's a surge strip. For backup, you want the one with the battery.

How long do you need to stay online?

With the desk, the harder question is almost never how much power — it's how long you need it to last.

A few minutes to save your work and shut down safely is one answer, and a small UPS covers it. A stretch of real work points to a power station with enough stored energy. Riding out a multi-day storm points to a generator, or a battery you can recharge from one.

Our guide on watts versus watt-hours explains the stored-energy side, and our guide on sizing for how long — runtime and fuel — covers planning fuel or charge for the whole outage plus a reserve. For a light load like a desk, a little stored energy stretches a surprisingly long way.

> **★ Tell me how long, and I'll help with how**
> The 'how long' question is the one worth thinking about in advance. Call or text me at (330) 200-8042 with a sense of the outages you get, and we'll pick the tool that keeps you online for that stretch.

Set it up and test it before you need it

A backup you've never tried is a backup you don't really have yet. The desk is the perfect place to practice, because the stakes are low and the setup is simple.

Once you have a UPS or a power station, plug the desk gear in and try it on a calm afternoon. Pull the wall plug on purpose and watch what happens — does the internet stay up, does the computer keep going, how long before you'd want to shut down? A quiet test tells you more than any label.

It's also the moment to learn the little things: which outlet is the battery-backed one, how to read the charge, how to switch your phone to a hotspot. Practiced once in daylight, these become second nature when the lights actually go out.

> **★ I'll set it up and test it with you**
> Getting your backup set up and tested is exactly what a visit is for. I'll wire up the desk, try it together, and make sure you know how it all works. A first visit is a flat $99, and some of this I can walk you through right on your screen for $49. Call or text me at (330) 200-8042.

Common home-office backup mistakes

A handful of avoidable slip-ups account for most of the trouble folks have keeping a desk online. Here they are, so you can sidestep them.

- **Buying a big generator for a tiny load,** when a quiet UPS or a small power station would keep the desk online more gracefully.
- **Feeding electronics rough power,** instead of choosing clean inverter power or running them through a UPS.
- **Forgetting the internet company's end,** and being surprised when the connection drops even though your own gear has power.
- **Powering the modem but not the router** (or the other way round), so half the setup is dark and nothing reaches the internet.
- **Never testing it,** then fumbling with a strange device in the dark during the first real outage.

> **! Never bring the generator indoors for the internet**
> It's tempting to set a generator on the porch or in the garage to keep it close to the office — please don't. Any fuel-burning generator gives off carbon monoxide, an invisible, deadly gas. It runs outdoors only, well away from the house. A battery or power station makes no exhaust and is the safe choice right there on your desk.

Questions worth asking

Whether you're talking to a salesperson or to me, these cut straight to what a desk really needs.

Q: Does this unit make clean power for electronics?

Ask for 'pure sine wave' or 'inverter' power. Computers, modems, and routers prefer it, and rough power can shorten their life. A UPS is another way to give the desk clean, steady power.

Q: Will it bridge the gap while my generator starts?

That's a UPS's specialty. Plug the desk into the UPS, feed the UPS from the generator, and the battery carries you across the start-up and any dips without a blink.

Q: How many hours will it keep my desk going?

For a battery, that's the watt-hours question — how much energy it stores against your small, steady load. The lighter the desk, the longer a given battery lasts.

Q: Do I even need a generator for this?

Often not. For short outages a UPS or a small power station handles a desk on its own. A generator earns its place mainly for long, multi-day outages or a bigger whole-home plan.

> **✔ There's no silly question**
> If any of this still feels slippery, that's normal — call or text me at (330) 200-8042 and we'll sort out exactly what your desk needs.

When the desk is only part of the plan

Sometimes the office isn't the whole story — it sits alongside the fridge, the furnace, and everything else you'd want in an outage.

If that's you, the desk is the easy, light passenger on a bigger plan. Our guide on making your must-run list helps you gather everything you'd want running, and our guide on essentials versus whole-home helps you decide how big a goal to aim for. The desk simply tucks in among the other steady loads.

The good news carries over: because the desk draws so little and never surges, adding it to a larger plan barely moves your number. Size for the big motors first — the fridge, the well pump, the furnace blower — and the office rides along underneath with room to spare.

> **✔ The desk rarely changes the size**
> On a whole-home plan, the office is almost a rounding error next to the motors. Plan the heavy loads first, and the desk fits in without a fuss.

Common Questions

The home-office and internet questions I hear most, answered plainly.

Q: Will my internet even work if the power's out?

Your modem and router need power, and so does the equipment out on the line. With cable or fiber, the provider's gear often runs on its own backup for a while, so you may stay connected as long as your own gear is powered — but not always. A charged phone as a hotspot is a good backstop.

Q: Is a power station safe to use indoors at my desk?

Yes. A battery power station makes no exhaust, so it's safe right there beside you. That's a big reason it's such a good fit for an office. A fuel-burning generator, by contrast, must always run outdoors.

Q: Can't I just plug my computer straight into a generator?

You can, but two cautions: the power may be rougher than the computer likes, and the computer can blink off while the generator starts. Running it through a UPS solves both, giving clean power and a seamless bridge.

Q: Do I need a big unit to run a home office?

Almost never. A desk is a small, steady load with no motor surge, so a modest UPS or a small power station usually does the job. Save the bigger units for motors and whole-home plans.

Q: What about my printer?

A printer is a steady electronic load too, though a laser printer's heater can draw a fair bit while it warms up. It's easy to simply print before or after you lean on the battery, rather than counting on it mid-outage.

> **★ Still have a desk question?**
> Send me your list — the internet box, the computer, the phone — at (330) 200-8042, and we'll figure out the simplest way to keep you connected, at your pace.

A quick self-check at your kitchen table

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

- ❑ I've listed everything on my desk that plugs in — internet box, computer, phone, printer.
- ❑ I know whether my backup makes clean power, or whether I'll run the gear through a UPS.
- ❑ I have a plan for the seconds while a generator starts — usually a UPS to bridge them.
- ❑ I know roughly how long I need to stay online, not just how much power the desk draws.
- ❑ I have a second way onto the internet — a charged phone and its hotspot.
- ❑ I've tested the setup once, in daylight, before needing it for real.

> **✔ If any answer is 'not sure', that's fine**
> That's exactly what a friendly phone call is for. Reach me at (330) 200-8042 and we'll fill in the blanks together.

Bringing it all together

A home office is one of the gentlest things you'll ever size for: a little power, kept clean and steady, for as long as you need it.

Remember the shape of it. The desk is small and never surges, so the size is easy. What it really wants is clean power and a bridge across the flicker — which is why a UPS or a small power station is so often the right first move, with a generator added only for the long haul.

From here, our guide on watts versus watt-hours helps you weigh a battery, our guide on sizing an inverter generator explains clean power, and our guide on sizing for medical devices carries the same clean-power idea where it matters most. The desk fits neatly alongside them all.

> **★ Let's keep you connected, calmly**
> 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 make sure an outage never cuts you off — free advice, 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 keeping your home office and internet running through an outage 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 Desk Gear at a Glance

Small, steady loads -- and how fussy each is about clean power

	Power draw	Clean power?
Modem, router	Small, steady	Prefers it
Computer, monitor	Steady, no surge	Yes -- a UPS
Laptop, phone	Very small	Has own battery
Printer	Steady when on	Nice to have

No motors here -- steady electronic loads, just sensitive to rough power.

From Desk Gear to a Small Backup

Sizing the office is mostly adding -- no surge

The desk is a light, steady load -- clean power matters more than raw size.

Three Ways to Power the Desk

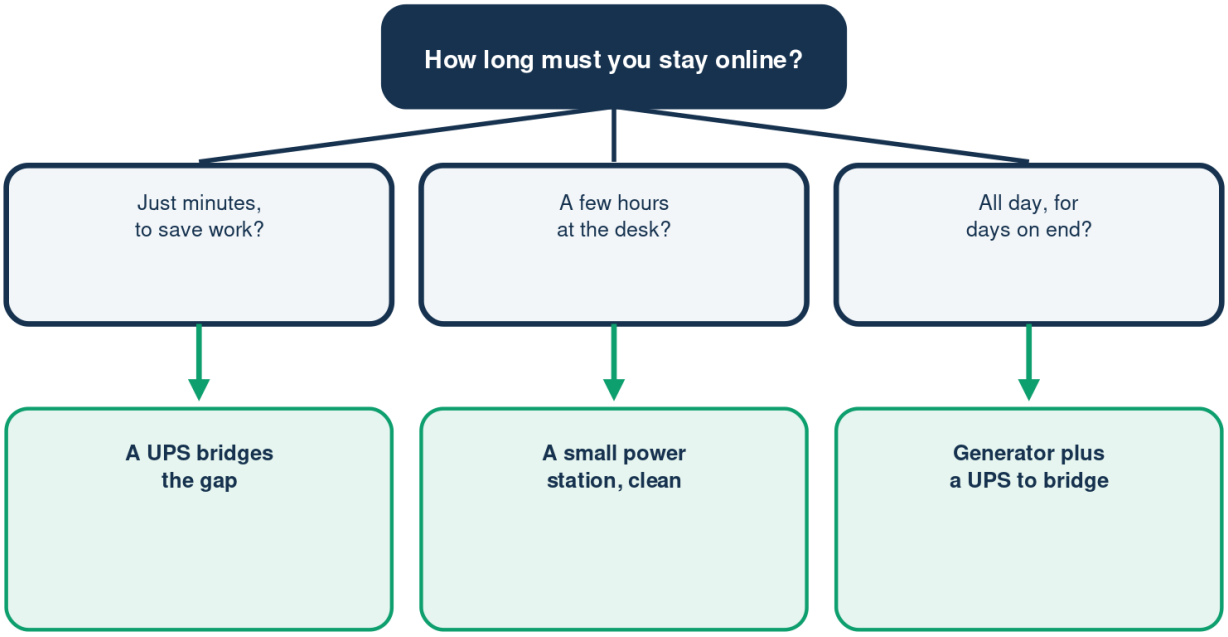
A UPS, a power station, or a generator

	Best at	Watch for
UPS (battery)	Instant, no gap	Short runtime
Power station	Quiet, clean, hours	Recharge it
Generator	Long runtime	Add a UPS

Many folks pair a UPS with a generator: instant bridge plus long runtime.

How Long Must You Stay Online?

Let your real need pick the tool



Sensitive electronics prefer clean inverter power or a UPS -- rough power can harm them.

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.

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