BILL'S HOME TECH

Home & Small Business Tech Solutions

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Sizing Solar to Your Actual Electric Bill (Reading Your kWh)

The right size is the one that matches how much power you really use — here's how to find it

Plain-English solar help from:
Bill's Home Tech
Portage County, Ohio

Tech Made Simple. Service Made Personal.

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SUMMARY

The 60-Second Version

Size a solar system to how much electricity you actually use, not to your roof or a salesperson's ambition. The key number is kilowatt-hours (kWh) — the amount of power, not the dollars — which you add up across twelve months of bills or pull from your utility's website. As a rough Ohio rule, each kilowatt of panels makes about 1,100 to 1,300 kWh a year, so divide your yearly use by about 1,200 for a ballpark size.

Because Ohio pays only a few cents for exported power, bigger-than-you-need rarely pays; many homeowners target a strong majority of their usage rather than every last kilowatt-hour, and shift big appliances to daytime to use more of their own solar. Be wary of any quote whose production far exceeds your usage, justified by "selling it back."

Bill will help you find your real number and check a quote against it, with no stake in the size.

1 The Short Version

The right size for a solar system is not "as big as your roof" or "as big as the salesperson can sell" — it is the size that matches how much electricity you actually use, with Ohio's rules in mind. Get this right and your solar pays off as well as it can; get it wrong and you either fall short or overpay for power you end up giving away. The good news is that your own electric bill holds the answer.

This guide shows you how to read your usage, turn it into a sensible system size, and spot a quote that is padded bigger than you need. You do not need any math beyond adding and dividing. Bill does not sell solar and earns nothing from the size you choose, so this is sizing done purely in your interest.

- Size solar to your real yearly electricity use, found right on your bills.

- In Ohio, bigger-than-you-need rarely pays, because exported extra power earns only a few cents.
- Your yearly kilowatt-hours (kWh) are the key number — not your dollar amount.
- A quote much larger than your usage, justified by "selling it back," deserves hard questions.

> **TIP**
> Gather a full year of electric bills before you talk sizing with anyone. A single month can mislead badly, because summer and winter usage differ a lot. The full-year total is the honest basis for sizing.

2 Why Size Is the Whole Ballgame

System size drives both what you pay and what you save, so getting it right is the heart of a good solar decision. Too small, and you are still buying a lot of grid power; too big, and you have spent more up front to make surplus that, in Ohio, you are barely paid for when it flows back to the grid.

This matters more in Ohio than in states with generous one-for-one export credits. Here, every extra kilowatt-hour your oversized system makes and exports earns only a few cents, while it cost you real money to build the capacity to make it. So the sweet spot is a system matched to what you can actually use — not the biggest one a salesperson can fit.

> **GOOD TO KNOW**
> In a full net-metering state, oversizing is less harmful because exported power is worth full value. In Ohio's net-billing world it is a real waste, which is why right-sizing matters so much here. See our net-billing guide for the why behind this.

3 Finding Your Kilowatt-Hours

The number that matters for sizing is kilowatt-hours, abbreviated kWh — the actual amount of electricity you use, not the dollars you pay. Your bill shows it, usually near the usage or "meter" section. Dollars can mislead because rates change; kilowatt-hours are the steady measure of how much power your home actually draws.

1. Find the "kWh used" figure on one monthly bill — it is the amount of electricity, not the cost.
2. Do this for all twelve months of a year, or pull the 12-month usage from your utility's website.
3. Add the twelve months together to get your total yearly kilowatt-hours.
4. Jot that yearly number down — it is the foundation of right-sizing your system.

> **TIP**
>
> Most utilities let you see a full year of your usage online, often as a tidy chart. If paper bills are scattered, that online history is the easiest way to get your true yearly kilowatt-hours in one place.

4 A Typical Ohio Home, For Reference

To give your number context, a typical Ohio household uses very roughly somewhere around 800 to 1,000 kilowatt-hours a month, which is on the order of 10,000 to 12,000 kilowatt-hours a year — but homes vary enormously with size, heating type, and habits. Your own total is what counts; this is just a yardstick to see whether your usage is low, average, or high.

Knowing roughly where you fall helps you sanity-check a quote. If a salesperson proposes a system sized to make far more than your yearly usage, that is a flag worth questioning — especially in Ohio, where the surplus earns little. If it is sized well below your usage, you will still lean heavily on the grid.

GOOD TO KNOW

Electric heat, a hot tub, a pool pump, or charging an electric car can push a home well above average, while a small, gas-heated home can sit well below. That is exactly why your own 12-month total matters more than any average — it reflects your real life.

5 Turning Usage Into System Size

Once you know your yearly kilowatt-hours, you can estimate a sensible system size. The rough idea is that each kilowatt of panels produces a certain number of kilowatt-hours per year in Ohio's climate, so you work backward from your usage. A good installer does this precisely for your roof; here is the back-of-the-envelope version so you can follow along.

1. Start with your total yearly kilowatt-hours (say, 10,000 kWh).
2. In Ohio, very roughly, each 1 kilowatt of panels makes on the order of 1,100 to 1,300 kWh a year, depending on roof and shade.
3. Divide your yearly use by that figure to get a ballpark system size — 10,000 ÷ 1,200 is about 8 kilowatts.
4. Treat that as a starting point to discuss, then let an installer refine it for your specific roof.

WATCH OUT

That per-kilowatt production figure is a rough Ohio average and swings with your roof's direction, tilt, and shade. Do not treat the back-of-envelope number as exact — it is a sanity-check against a quote, not a final design. A shaded or north-facing roof will make less per kilowatt.

Rather not do this yourself? I'll come to your home and set it up for you — a flat $99 first visit across Portage County, Ohio and nearby communities. Outside the area? I also help remotely by phone or screen-share. Book at billshometech.com/book or call (330) 200-8042.

6 Why You Usually Don't Size to 100%

It might seem logical to size a system to cover every last kilowatt-hour you use, but in Ohio that is often not the smartest target. Because the last slice of production tends to be surplus that gets exported for only a few cents, chasing a full one-hundred-percent offset can mean overpaying for capacity whose output you largely give away.

Many Ohioans land on a system that covers a strong majority of their usage — enough to take a real bite out of the bill — while avoiding the oversized top end that mostly feeds cheap exports. The exact right point depends on how much power you can use during the day. This is a judgment call worth making with clear numbers, not a sales target.

GOOD TO KNOW

Covering, say, most of your usage rather than every last kilowatt-hour often gives the best balance in Ohio: a meaningfully smaller bill without paying for surplus you would barely be credited for. A battery can shift this math by letting you keep more of your own power — see our battery guide.

7 When Day-vs-Night Usage Matters

Because Ohio pays so little for exported power, when you use electricity matters almost as much as how much. A home that uses a lot of power during daylight — someone home during the day, daytime appliance use, electric-car charging in the afternoon — captures far more of its solar's value than a home that is dark all day and busy only at night.

If most of your usage happens after sunset, a big share of your midday solar would be exported for a few cents and then bought back at full price in the evening. That does not mean solar is wrong for you, but it does affect the right size and whether a battery is worth considering. An honest sizing conversation takes your daily rhythm

into account.

TIP

You can nudge your usage toward the sun with no new equipment: run the dishwasher, laundry, and other big loads during the day. Shifting even a couple of them raises how much of your own solar you keep — and in Ohio that is worth several times more than exporting it.

8 Planning for Changes Ahead

Good sizing looks a little into the future, not just at last year's bills. If your electricity use is likely to rise or fall soon, the right system size should reflect where you are heading, not only where you have been. It is easier to size correctly now than to add on later.

- Planning to buy an electric car? That can add a lot of yearly kilowatt-hours — size for it.
- Thinking about switching from gas heat to an electric heat pump? Your usage would climb.
- Kids moving out, or you spending winters elsewhere? Your usage may drop.
- Planning major efficiency upgrades? They can lower the usage you need to cover.

GOOD TO KNOW

Adding panels to an existing system later is possible but not always cheap or simple, so it is worth sizing with the next few years in mind. At the same time, do not let a salesperson talk you into a much bigger system today on the strength of a vague "someday" — size for changes you are genuinely planning.

9 Spotting an Oversized Quote

One of the most common ways a solar quote gets padded is by proposing a system larger than the homeowner needs. A bigger system is a bigger sale, and the justification is often "you'll sell the extra back to the utility" — which, in Ohio, barely pays. Knowing your own usage is your best defense against this.

1. Compare the quote's expected yearly production to your actual yearly usage.
2. If the production is well above your usage, ask why the system is that big.
3. Be skeptical of "you'll sell the surplus back" as the reason — Ohio pays little for exports.
4. Ask for a quote sized closer to your real usage and compare the price and payback.

> **WATCH OUT**
> A system that makes far more than you use is not a bonus in Ohio — it is capacity you paid for whose output you largely give away for a few cents. If a quote is sized well above your usage, treat that as a reason to push back, not a selling point.

10 When Your Roof and Your Usage Don't Match

Sometimes the system your usage calls for and the system your roof can hold are two different sizes, and it is important to know which way the mismatch runs. Your roof's usable area, direction, and shade all cap how many panels fit and how much they make — no matter how much power you use.

- If your usage is high but your roof is small or shaded, you may not fit a system that covers it all — and that is fine; partial solar still helps.
- If your roof is large but your usage is modest, resist filling it just because the space exists — extra panels mostly feed cheap exports in Ohio.
- A roof with several directions may do best with panels only on the good faces, not every slope.
- Shade from trees or chimneys can shrink the sensible size well below what the bare area suggests.

GOOD TO KNOW

The goal is never to cover the roof — it is to match sensible production to your usage. A smaller, well-placed system on your best roof faces usually beats panels crammed onto shaded or poorly-aimed slopes just to use the space. Our roof guide covers this in detail.

11 A Worked Sizing Example

Let us put it all together with round numbers, so the whole process feels concrete. Imagine your twelve bills add up to 10,800 kilowatt-hours for the year, and you are home a fair amount during the day.

1. Yearly usage: 10,800 kWh (added from twelve monthly bills).
2. Rough Ohio production: about 1,200 kWh per kilowatt of panels per year.
3. Full-offset size: 10,800 ÷ 1,200 is about 9 kilowatts.
4. Because exporting pays little, you might instead target a system covering a strong majority of usage — perhaps around 7 to 8 kilowatts — and let an installer refine it for your roof.
5. Then compare quotes at that size on dollars per watt, using our "How to Read a Solar Quote" guide.

GOOD TO KNOW

Notice how the honest size came out of your own numbers, not a salesperson's pitch. Walking in with your yearly usage and a ballpark size already in mind is the single best way to keep a sizing conversation grounded and fair.

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12 Reading a Full Year of Bills

Sizing a system well starts with one unglamorous task: gathering a whole year of your electricity use. One or two months will mislead you, because a July air-conditioning bill and a mild April bill tell very different stories. A full year, added up, is the number that matters.

1. Collect twelve months of bills, or download your usage history from your utility's website.
2. On each bill, find the kilowatt-hours used that month — not the dollar amount, the kWh.
3. Write each month's kWh in a simple list, as in the example below.
4. Add all twelve together to get your yearly total — this is the number a quote should be built around.
5. Note your highest and lowest months, so you understand your own summer-versus-winter swing.

Month	Example kWh
January	950
April	620
July	1,400
October	700
Full-year total	About 10,500

TIP

Most utilities let you download a full year of usage as a simple chart or spreadsheet. If you cannot find it, a quick call to the utility will get it, and it is worth having before any salesperson builds a quote around a guess.

13 The Sizing Math, Shown Three Ways

Turning yearly usage into a system size is simple arithmetic, and it is worth doing yourself so you can sanity-check any quote. As a rough rule for Northeast Ohio, each kilowatt of panels makes somewhere around 1,150 to 1,250 kilowatt-hours a year. Here is how that plays out for three homes.

Home	Yearly use	Rough size to cover most of it
Smaller home	6,000 kWh	About 5 kW
Typical home	10,500 kWh	About 8-9 kW
Larger home	16,000 kWh	About 13 kW

1. Take your yearly kWh total from the previous chapter.
2. Divide by about 1,200 to estimate the kilowatts of panels it would take to match your usage.
3. Remember this covers roughly your whole year's use on paper — not every hour, since solar and your usage do not line up perfectly.
4. Use this as a yardstick to check whether a quote's proposed size is sensible for your bills.

> **GOOD TO KNOW**
> This is a back-of-the-envelope estimate, not a final design. Shade, roof direction, and your day-versus-night habits all shift it. But it is enough to spot a quote that proposes far more panels than your bills could ever justify.

14 Why Oversizing Costs You in Ohio

A bigger system is not automatically a better one, and in Ohio it is often a worse one. Because you are paid only a little for power you export, panels that make more than you can use are selling their extra power back for pennies. You paid full price for those panels but collect a fraction of their value.

1. Picture a system sized well past your usage, exporting a large share of what it makes.
2. Value the power you use yourself at your full retail rate — the real savings.
3. Value the exported surplus at Ohio's low export rate — often just a few cents.
4. Notice that the extra panels cost full price but earn that low rate, stretching payback instead of shortening it.

> **WATCH OUT**
>
> A salesperson paid by system size has every reason to propose a big one. In a net-billing state like Ohio, oversizing to "sell power back" rarely pays — it mostly sells your surplus cheaply while you paid retail for the panels. Match the system to the power you will actually use.

15 Words You'll Hear

The sizing terms you will meet, translated plainly.

Term	What it really means
Kilowatt (kW)	The system's size — how much it can produce at once.
Kilowatt-hour (kWh)	The amount of energy used or made over time; what your bill counts.
Offset	The share of your yearly use the solar is designed to cover.
Production ratio	Roughly how many kWh a year each kW of panels makes in your area.
Oversizing	Installing more panels than your usage justifies — costly under net billing.
Self-consumption	The portion of your solar you use yourself rather than exporting cheaply.

GOOD TO KNOW

The most useful number you own is your yearly kWh total. Bring it to every conversation, and any honest quote will size the system around it rather than around how many panels fit on your roof.

16 Questions People Ask Us

The sizing questions Bill hears most, answered plainly.

Should I size solar to cover 100 percent of my bill?

Usually not in Ohio. Because exports pay little and usage never lines up perfectly with sunshine, aiming a bit under your full use often gives the best value. The earlier chapter explains why.

I'm getting an electric car or a heat pump — should I size up now?

A known, near-term change is a fair reason to build in some room. A vague "might someday" is not. Size for the use you can reasonably expect, not for every possibility.

The quote has way more panels than my bills suggest. Is that a problem?

It can be. Ask the installer to show how your yearly usage led to that size. If the panels far exceed your usage, you may be paying for power you will only ever export cheaply.

My roof can't fit enough panels for my usage. What then?

Then a smaller system that covers part of your bill may still be worthwhile, or solar may not be the best fit for this roof. An honest installer will tell you which, rather than cramming on panels that do not help.

GOOD TO KNOW

If a proposed size does not match your bills, that mismatch is worth a neutral second look before you commit. Bill can line your yearly usage up against a quote's proposed size with nothing to sell you.

17 When to Call Bill

Right-sizing is where a lot of solar value is won or lost, and it is also where padding hides. You do not have to work out your usage and judge a quote's size by yourself. Bill has no stake in the size you choose, so he can help you find the honest number and check a quote against it.

- You want help pulling your true yearly kilowatt-hours from your bills or utility website.
- A quote seems larger than you need and you want a second opinion.
- You are planning changes — an electric car, a heat pump — and want to size for them sensibly.
- Your usage is mostly at night and you are weighing size and whether a battery makes sense.
- You simply want an independent check that a system is sized in your interest, not the seller's.

Call Bill at (330) 200-8042. He will help you find your real usage, translate it into a sensible system size for your roof and your habits, and flag any quote that is padded bigger than it should be.

CHEAT SHEET

Everyday Cheat Sheet

Keep this with your electric bills. Size to your real usage, not to a salesperson's pitch.

I want to...	Do this...
Find the key number	Look for "kWh used" on your bill — that's electricity, not dollars
Get your yearly total	Add 12 months of kWh, or pull the 12-month usage from your utility site
Estimate a system size	Divide yearly kWh by ~1,200 (rough Ohio kWh per kW of panels)
Avoid oversizing	In Ohio, exported extra power earns only cents — don't pay for surplus
Use more of your solar	Run big appliances in daylight; consider a battery if you're night-heavy
Spot a padded quote	Compare the quote's yearly production to your actual yearly usage
Get help	Call Bill: (330) 200-8042

BEFORE YOU GO

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 results.

HOW I CAN HELP

Your Visit — and My Promise

You don't have to remember all of it — just that a friendly, patient person is one call away, whenever you'd rather have a hand.

KEY SPECS

In your home — $99 flat for the first visit, no contracts and no surprises, with a 30-day come-back-free follow-up. In-home visits cover Portage County, Ohio and nearby communities.
Outside the area? Remotely — $49 for a screen-share session (free for Support Plan members, $39/mo), refundable if I can't fix it — and credited toward a visit if you'd rather have me in person. Book either at billshometech.com/book.

GOOD TO KNOW

My promise — If you're not 100% satisfied with your visit, I'll come back at no charge, or refund the full $99. No questions, no awkwardness. That's how I'd want to be treated.

Whenever you're ready, I'll come to your home anywhere in Portage County, Ohio and nearby communities, at your pace. Too far for a house call? I also help remotely. Book at billshometech.com/book or call (330) 200-8042. — Bill

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