



The AhaBulb Party Game

STUFF EVERY SOLAR OWNER SHOULD KNOW

How to play (30 seconds)

1. The reader reads a card and its three answers out loud.
2. Everyone says "One, two, three, Goldilocks!" and holds up 1, 2, or 3 fingers.
3. The reader flips the card and reads the answer and the Why.
4. Everyone who was right takes a point.
5. The reader reads the joke with a straight face. Anyone laughs or groans? The reader takes a point. Nobody got it right? The reader takes a point.
6. Pass the deck left. Most points when the points run out wins.

What you need

These cards and the point tokens on the last two pages. No tokens? Use coins, buttons, pebbles, or marshmallows. 3 to 10 players, ages 8 and up.

Expert rule: Bet It

Before the reader flips the card, you may put one of your points on your answer. Right: take your normal point plus one extra. Wrong: your bet goes back to the pile. That's it.

Printing

Print single-sided, on cardstock if you have it. Cut on the dashed lines. Each card is a 3.5 x 5 inch index card. The answer half is upside down on purpose, so the table can't peek.

Cards 1 to 50 of 87. More cards and the free daily online game at sesk.info. Built 2026-10-14.

HOME & YARD



About how much power does a single solar PV cell typically produce?

- A** About 1 or 2 watts
- B** About 50 watts
- C** About 400 watts

FLIP FOR THE ANSWER

#5684

SESK.INFO

STRAIGHT FACE
What did the baby light bulb say to the mommy light bulb? "I love you watts and watts!"

A About 1 or 2 watts
WHY One cell is tiny. That is why cells are wired together into panels (modules), and panels into arrays, to power a home.

HOME & YARD



What kind of electricity do solar PV cells generate?

- A** Alternating current (AC)
- B** Direct current (DC)
- C** Static electricity

FLIP FOR THE ANSWER

#5685

SESK.INFO

STRAIGHT FACE
DC or AC? The solar panel says it just wants to go straight.

B Direct current (DC)
WHY Solar cells produce direct current, which flows in one direction. Homes and the grid run on AC, so an inverter converts it.

HOME & YARD



What does a solar inverter do?

- A** Stores extra power for the night
- B** Cleans dirt off the panels
- C** Converts DC panel power into AC household power

FLIP FOR THE ANSWER

#5686

SESK.INFO

STRAIGHT FACE
Which is an electrician's favorite band? AC/DC.

C Converts DC panel power into AC household power
WHY Panels produce DC electricity. Household appliances and the grid use AC, so the inverter does the conversion.

HOME & YARD



Where is a microinverter installed in a rooftop solar system?

- A** One large box beside the meter
- B** On every individual panel
- C** Inside the battery only

FLIP FOR THE ANSWER

#5687

SESK.INFO

STRAIGHT FACE
If the sun had a kid, what would it be like? It would be like father, like sun.

B On every individual panel
WHY Instead of one central inverter, each panel gets its own small one. That lets each panel work independently.

HOME & YARD



With a string inverter, what happens if one panel on the string is shaded?

- A** Only that panel is affected
- B** The inverter shuts down the house
- C** Output of the whole string is reduced

FLIP FOR THE ANSWER

#5688

SESK.INFO

STRAIGHT FACE
Why is the sun always very mad at the clouds?
They just keep throwing shade.

C **Output of the whole string is reduced**
WHY A string inverter connects a set of panels in series. One weak panel holds back the others on that string.

HOME & YARD



How do solar cells become a home solar system?

- A** Arrays become cells, then modules
- B** Cells become modules, modules form arrays
- C** Panels become batteries, then cells

FLIP FOR THE ANSWER

#5689

SESK.INFO

STRAIGHT FACE
What sort of bond does the sun have with all the planets in its solar system? A bond of solidarity.

B **Cells become modules, modules form arrays**
WHY Cells are wired together into modules, also called panels. Panels are then combined into arrays.

HOME & YARD



How many watts are in one kilowatt (kW)?

- A** 100 watts
- B** 1,000,000 watts
- C** 1,000 watts

FLIP FOR THE ANSWER

#5690

SESK.INFO

STRAIGHT FACE
Why did the kilowatt get a trophy? It was a thousand times better than a watt.

C **1,000 watts**
WHY Kilo means a thousand. Solar systems are sized in kilowatts, like a 7 kW system, to describe their power.

HOME & YARD



What is a kilowatt-hour (kWh)?

- A** One kilowatt of power used for one hour
- B** One thousand watts of voltage
- C** The power of the sun at noon

FLIP FOR THE ANSWER

#5691

SESK.INFO

STRAIGHT FACE
Hagrid: "Yer a unit of electrical energy, Harry." Harry Potter: "I'm a watt!"

A **One kilowatt of power used for one hour**
WHY Power (kW) is the rate. Energy (kWh) is that rate over time. Your electric bill charges you for kWh.

HOME & YARD



Which unit tells you how much energy a home battery can store?

- A** Kilowatts (kW) only
- B** Kilowatt-hours (kWh)
- C** Volts

FLIP FOR THE ANSWER

#5692

SESK.INFO

STRAIGHT FACE
Why did the battery get a raise? It had great capacity.

B Kilowatt-hours (kWh)
WHY Energy capacity is the total amount that can be stored or discharged, in watt-hours. Power (kW) is how fast it can deliver.

HOME & YARD



About how much electricity does the average US home buy per month, in kWh?

- A** About 300 kWh
- B** About 2,500 kWh
- C** About 900 kWh

FLIP FOR THE ANSWER

#5693

SESK.INFO

STRAIGHT FACE
What football team do energy providers root for the most? The Chargers.

C About 900 kWh
WHY EIA reports the average US residential customer bought 10,791 kWh in 2022, about 899 kWh a month. Your own bill is the best guide for sizing solar.

HOME & YARD



In EIA's 2022 data, which state had the lowest yearly electricity purchases per residential customer?

- A** Hawaii
- B** Arizona
- C** Alaska

FLIP FOR THE ANSWER

#5694

SESK.INFO

STRAIGHT FACE
Why do people usually go to sunbathe on beaches during the summer? Because it is their favourite sea-sun.

A Hawaii
WHY Hawaii customers bought 6,178 kWh, the lowest. EIA notes purchases can miss power made by rooftop solar, which is common in Hawaii. Louisiana was highest at 14,774 kWh.

HOME & YARD



When a PV array briefly produces more power than the inverter's AC rating, what happens?

- A** The extra is stored in the panels
- B** Output is clipped to the inverter's AC rating
- C** The inverter doubles its rating

FLIP FOR THE ANSWER

#5698

SESK.INFO

STRAIGHT FACE
How does the sun get a haircut from the moon? Eclipse it.

B Output is clipped to the inverter's AC rating
WHY An inverter can only pass its rated AC power. Power above that limit is lost.

HOME & YARD



Which kind of location generally receives the most sunlight (insolation)?

- A** Lower latitudes and arid climates
- B** High latitudes with frequent cloud
- C** Coastal fog belts near the poles

FLIP FOR THE ANSWER

#5701

SESK.INFO

STRAIGHT FACE
Why do solar panels love deserts? Plenty of sun and no one complains about the heat

A Lower latitudes and arid climates
WHY Sunlight is stronger nearer the equator, and dry regions have fewer clouds. EIA says latitude, climate and weather are the major factors.

HOME & YARD



Denver, near 40 degrees latitude, gets about how much more solar energy in June than in December?

- A** About 10% more
- B** Nearly three times more
- C** About the same

FLIP FOR THE ANSWER

#5702

SESK.INFO

STRAIGHT FACE
December sun: it comes late and leaves early.

B Nearly three times more
WHY In summer the sun is higher and the days are longer, so far more energy reaches the ground. DOE uses Denver as its example.

HOME & YARD



When does the greatest amount of solar energy reach the earth's surface?

- A** At sunrise
- B** At 6 pm local time
- C** Around solar noon

FLIP FOR THE ANSWER

#5703

SESK.INFO

STRAIGHT FACE
Solar noon is when the sun finally hits its peak. Good for panels, hard for sunscreen.

C Around solar noon
WHY At solar noon the sun is highest, so its light passes through the least atmosphere. That is when panels usually make the most power.

HOME & YARD



Solar radiation data for PV is often given in what units?

- A** Kilowatt-hours per square meter
- B** Volts per ampere
- C** Degrees per hour

FLIP FOR THE ANSWER

#5704

SESK.INFO

STRAIGHT FACE
A PUNNY BOOK: "All About the Sun" by U.V. Rays.

A Kilowatt-hours per square meter
WHY This tells how much solar energy lands on each square meter. It is the basis for estimating how much your panels can produce.

HOME & YARD



What do traditional 'grid-following' inverters need to operate?

- A A direct line to the sun
- B An outside signal from the electrical grid
- C A battery in every system

FLIP FOR THE ANSWER

#5708

SESK.INFO

STRAIGHT FACE
Why did the electrician join Facebook? So he could post his current status.

B An outside signal from the electrical grid
WHY Grid-following inverters time their output to the grid's signal. If the grid goes down, they lose that signal and shut off.

HOME & YARD



Will every solar-plus-battery system keep your home powered during a grid outage?

- A Yes, any home battery provides backup
- B Only if it is designed to run without the grid
- C No, batteries never work in outages

FLIP FOR THE ANSWER

#5709

SESK.INFO

STRAIGHT FACE
What would you call a power failure? A current event!

B Only if it is designed to run without the grid
WHY DOE says these systems rely on advanced inverters to run without grid support, if they are designed to do so. Ask before you buy if backup is the goal.

HOME & YARD



As of October 2026, can you claim the federal residential solar credit (25D) for a system installed this year?

- A Yes, at 30%
- B No, it ended for 2026 installations
- C Yes, at 26%

FLIP FOR THE ANSWER

#5710

SESK.INFO

STRAIGHT FACE
Tax returns are kind of like magic tricks. One minute, you see them; the next, it's disappeared!

B No, it ended for 2026 installations
WHY The IRS says the credit is not available for property placed in service after December 31, 2025. Systems finished in 2025 or earlier could claim it on Form 5695.

HOME & YARD



Before it ended, what percent of qualified costs did the federal residential clean energy credit cover?

- A 10%
- B 50%
- C 30%

FLIP FOR THE ANSWER

#5711

SESK.INFO

STRAIGHT FACE
What's the best way to teach your kids about taxes? Eat 34% of their ice cream.

C 30%
WHY The IRS says the credit equaled 30% of the costs of new, qualified clean energy property installed from 2022 through 2025.

HOME & YARD



For the federal credit through 2025, how large did a home battery have to be to qualify?

- A** At least 3 kWh
- B** At least 10 kWh
- C** At least 1 kWh

FLIP FOR THE ANSWER

#5712

SESK.INFO

STRAIGHT FACE
Why doesn't a dead battery cost anything? Because it's free of charge.

A At least 3 kWh
WHY Battery storage qualified starting in 2023 if its capacity was at least 3 kilowatt-hours. Smaller units did not.

HOME & YARD



If your tax liability was too low to use the whole 2025 solar credit, what could you do?

- A** Get it as a cash refund
- B** Carry the unused part forward to 2026
- C** Lose it permanently

FLIP FOR THE ANSWER

#5713

SESK.INFO

STRAIGHT FACE
Why does the IRS hate Sherlock Holmes? Because he makes too many deductions.

B Carry the unused part forward to 2026
WHY The credit was limited by your tax liability. The IRS instructions say you can carry the unused portion to the next year.

HOME & YARD



According to EIA, a PV system can make energy equal to what was used to build it within about how long?

- A** 10 to 15 years
- B** 25 to 30 years
- C** 1 to 4 years

FLIP FOR THE ANSWER

#5715

SESK.INFO

STRAIGHT FACE
How did the electrician pay for his new phone? He charged it.

C 1 to 4 years
WHY This energy payback is much shorter than a panel's lifespan. EIA says most PV systems operate for 30 years or more.

HOME & YARD



How long do most PV systems operate, according to EIA?

- A** 30 years or more
- B** About 5 years
- C** About 10 years

FLIP FOR THE ANSWER

#5716

SESK.INFO

STRAIGHT FACE
What is the one free thing everyone gets from the sun? A free trip around the sun.

A 30 years or more
WHY Panels have no moving parts, so they keep working long after repaying the energy used to make them. That long life makes solar a decades-long investment.

HOME & YARD



According to EIA, state-of-the-art PV module efficiency is now approaching what level?

- A** About 5%
- B** About 25%
- C** About 60%

FLIP FOR THE ANSWER

#5717

SESK.INFO

STRAIGHT FACE
Why did the light bulb fail his math quiz? He wasn't too bright

B About 25%
WHY Efficiency is the share of sunlight a panel turns into electricity. It was under 10% in the mid-1980s and around 15% by 2015.

HOME & YARD



EIA classifies a PV system as 'small-scale' if its capacity is under what size?

- A** Under 1 kW
- B** Under 100 MW
- C** Under 1 MW (1,000 kW)

FLIP FOR THE ANSWER

#5718

SESK.INFO

STRAIGHT FACE
Why did the megawatt feel big? It was a thousand kilowatts of confidence.

C Under 1 MW (1,000 kW)
WHY Rooftop systems on homes and most businesses are small-scale. Utility-scale plants have at least 1 MW of capacity.

HOME & YARD



What does it mean for a small solar inverter to 'ride through' a grid disturbance?

- A** It shuts off at the first flicker
- B** It stays connected during small disruptions
- C** It switches to nighttime mode

FLIP FOR THE ANSWER

#5719

SESK.INFO

STRAIGHT FACE
The sun doesn't play hide and seek, it always comes out in the end.

B It stays connected during small disruptions
WHY Ride-through helps keep the grid stable. If the disturbance lasts long or is large, the inverter disconnects and shuts down.

HOME & YARD



How can solar charge a home battery, according to DOE?

- A** Only after being converted to gas
- B** Only through the neighbor's meter
- C** Directly over DC or after conversion to AC

FLIP FOR THE ANSWER

#5720

SESK.INFO

STRAIGHT FACE
Why did the sun take a break? It needed to recharge its solar batteries.

C Directly over DC or after conversion to AC
WHY Some systems send panel DC straight to the battery. Others convert it to AC first. The inverter setup decides which path is used.

HOME & YARD



Which battery chemistry do most US utility-scale battery systems use, per EIA?

- A** Lithium-ion
- B** Lead-acid
- C** Alkaline

FLIP FOR THE ANSWER

#5721

SESK.INFO

STRAIGHT FACE
Why was the battery good at jobs? It had great energy.

A **Lithium-ion**
WHY EIA says most US utility-scale battery systems use lithium-ion. Its high cycle efficiency and fast response suit grid support.

HOME & YARD



On thick cloudy days, how much can the direct beam of sunlight be reduced?

- A** By about 1%
- B** By 100%
- C** By about 10%

FLIP FOR THE ANSWER

#5722

SESK.INFO

STRAIGHT FACE
What kind of shorts do clouds wear? Thunderwear!

B **By 100%**
WHY Direct sunlight can be blocked completely by thick clouds. Panels still make some power from diffuse light, but much less.

HOME & YARD



What should you confirm about a solar installer before signing a contract?

- A** Licensed, bonded and insured for residential solar
- B** Has the most yard signs in your neighborhood
- C** Offers a big discount if you sign today

FLIP FOR THE ANSWER

#5723

SESK.INFO

STRAIGHT FACE
Why is electricity an ideal citizen? Because it conducts itself so well.

A **Licensed, bonded and insured for residential solar**
WHY A license, a bond and insurance protect you if the work is bad or someone is hurt. Pressure to sign today is a classic warning sign, not proof of quality.

HOME & YARD



DOE says to compare solar quotes by converting each one to what number?

- A** Cost per panel
- B** Cost per watt
- C** Cost per roof square

FLIP FOR THE ANSWER

#5724

SESK.INFO

STRAIGHT FACE
What do you say when you break up with an electrician? Watt is love?

B **Cost per watt**
WHY Quotes may cover different system sizes and panel ratings. Dividing the price by the system's watts puts every bid on the same scale.

HOME & YARD



What does DOE suggest you ask an installer about who will actually do the work?

- A** Whether they own a truck
- B** Whether they live nearby
- C** Whether they will use subcontractors

FLIP FOR THE ANSWER

#5725

SESK.INFO

STRAIGHT FACE
Why is it always better to hire three electricians instead of just one? Because many hands make light work.

C **WHY** Whether they will use subcontractors
Some companies sell the job and hire others to install it. You want the people on your roof to be properly qualified, not just the salesperson.

HOME & YARD



DOE says to ask your installer to put what roof-related items in the proposal?

- A** Roof repairs and vent relocation
- B** A new chimney and gutters
- C** Paint for the fascia boards

FLIP FOR THE ANSWER

#5726

SESK.INFO

STRAIGHT FACE
Want to hear a joke about a roof? The first one's on the house.

A **WHY** Roof repairs and vent relocation
Panels can cover roof vents, and weak spots in the roof should be fixed first. Writing it into the proposal avoids surprise bills later.

HOME & YARD



DOE calls certification from which organization the solar industry standard for installers?

- A** OSHA
- B** NABCEP
- C** The FCC

FLIP FOR THE ANSWER

#5727

SESK.INFO

STRAIGHT FACE
Why are electricians so confident? They're always charged up.

B **WHY** NABCEP
NABCEP is a private credentialing body that tests and certifies solar professionals. It is not a government agency, but DOE points homeowners to it.

HOME & YARD



What is DOE's rule of thumb for how long an installer should have been in business?

- A** At least three months
- B** At least one year
- C** At least three years

FLIP FOR THE ANSWER

#5728

SESK.INFO

STRAIGHT FACE
Why is being a roofer special? People always have to look up to you.

C **WHY** At least three years
Solar work involves roofs, wiring and utility paperwork. A few years of track record means the company has finished jobs and still stands behind them.

HOME & YARD



Which of these should a solar installer you are considering be able to give you?

- A** References from previous clients
- B** A copy of your neighbor's bill
- C** Your utility's internal rate file

FLIP FOR THE ANSWER

#5729

SESK.INFO

STRAIGHT FACE
Why don't aliens visit our Solar System? They read the reviews: just one star.

A **WHY** References from previous clients
Past customers can tell you if the crew was neat, on time and responsive after the install. Reading reviews adds a second check.

HOME & YARD



Once permits are done, how long does DOE say the physical PV installation generally takes?

- A** Several months
- B** About a year
- C** Only a few days

FLIP FOR THE ANSWER

#5730

SESK.INFO

STRAIGHT FACE
I have this great construction joke, but I'm still working on it.

C **WHY** Only a few days
The long waits come from design, permits and utility approval. The crew work itself on a typical home is short.

HOME & YARD



Who usually obtains the local permits and arranges inspections for a home solar install?

- A** Your installer, with information from you
- B** Your next-door neighbor
- C** The panel manufacturer

FLIP FOR THE ANSWER

#5731

SESK.INFO

STRAIGHT FACE
Why did the construction worker dip his finger in blue ink? To get a blueprint.

A **WHY** Your installer, with information from you
Your local government sets the permit and inspection rules. DOE says to give your installer the information they need to get the permits and arrange the inspections.

HOME & YARD



Under most solar lease agreements, who is generally responsible for system maintenance?

- A** You, on your own
- B** The leasing company
- C** Your utility

FLIP FOR THE ANSWER

#5732

SESK.INFO

STRAIGHT FACE
With a lease, maintenance is someone else's problem. It's the ultimate out-of-sight, out-of-sun-mind.

B **WHY** The leasing company
With a lease, the company owns the equipment, so upkeep is generally its job. If you buy a system, maintenance is yours unless the contract covers it.

HOME & YARD



In a solar power purchase agreement (PPA), what do you agree to buy?

- A** The roof the panels sit on
- B** The installer's company
- C** The power the system generates

FLIP FOR THE ANSWER

#5733

SESK.INFO

STRAIGHT FACE
What did the energy company's CEO credit her success to? A series of strategic power moves.

C The power the system generates
WHY A third party owns and maintains the panels. You pay for the electricity they produce rather than for the equipment.

HOME & YARD



What is a solar co-op?

- A** A shared battery in a neighbor's garage
- B** A group that pools buying power for rooftop solar
- C** A utility that only sells solar power

FLIP FOR THE ANSWER

#5734

SESK.INFO

STRAIGHT FACE
Where do lightbulbs go shopping? The outlet mall.

B A group that pools buying power for rooftop solar
WHY Co-ops let neighbors shop together for rooftop systems. Acting as a group helps attract competitive bids from installers.

HOME & YARD



How often should you expect an inverter to need replacing during a 25-year PV array's life?

- A** Never, they last forever
- B** At least once
- C** Every single year

FLIP FOR THE ANSWER

#5735

SESK.INFO

STRAIGHT FACE
Why do transformers hum? They don't know the words!

B At least once
WHY Panels have no moving parts, but inverters work hard converting DC to AC and wear out sooner. Budget for a replacement in the system's life.

HOME & YARD



What feature do DOE's smart inverters add that helps utilities manage the grid?

- A** Two-way communication with the utility
- B** A built-in sunshade
- C** Free electricity for the neighborhood

FLIP FOR THE ANSWER

#5736

SESK.INFO

STRAIGHT FACE
What did the light bulb say to the generator? I really get a charge out of you!

A Two-way communication with the utility
WHY A smart inverter can talk with the utility, so the grid can handle many rooftop systems at once more smoothly.

HOME & YARD



According to EIA, most PV systems in the United States are what type?

- A** Fully off-grid
- B** Hooked to a generator only
- C** Grid-connected

FLIP FOR THE ANSWER

#5737

SESK.INFO

STRAIGHT FACE
What is an energy provider's favorite dance? The Electric Slide.

C Grid-connected
WHY Most homes with solar stay tied to the utility so the grid fills in when panels aren't producing. Grid-tied systems can send extra power back.

HOME & YARD



By the late 1970s, where were PV panels providing electricity, according to EIA?

- A** Remote off-grid locations
- B** Big city skyscrapers
- C** Municipal power plants only

FLIP FOR THE ANSWER

#5738

SESK.INFO

STRAIGHT FACE
What did the planets in the solar system say to the sun to appreciate him? We'd be in a dark place without you.

A Remote off-grid locations
WHY Where running power lines was too costly, panels plus batteries made sense. Off-grid systems still need storage for nights and cloudy days.

HOME & YARD



When a generator runs for backup power, how far from windows, doors and vents should it be?

- A** Right inside the garage door
- B** More than 20 feet away, outdoors
- C** Just under the window

FLIP FOR THE ANSWER

#5739

SESK.INFO

STRAIGHT FACE
A generator is a great backup, but keep it outside. It's the only guest that should never come in.

B More than 20 feet away, outdoors
WHY Generators make carbon monoxide, a deadly gas you cannot see or smell. Never run one in a garage, even with the door open.

HOME & YARD



When running a generator during an outage, what kind of CO detector does CDC recommend?

- A** None, you can smell CO
- B** A plug-in only model
- C** A battery-powered or battery backup detector

FLIP FOR THE ANSWER

#5740

SESK.INFO

STRAIGHT FACE
How do you pick out a dead battery from a pile of good ones? It's got no spark!

C A battery-powered or battery backup detector
WHY During an outage a plug-in alarm may have no power. CO has no smell, so a detector with a battery is your warning.

HOME & YARD



At what height does OSHA require fall protection in the construction industry?

- A** Six feet
- B** Sixteen feet
- C** Thirty feet

FLIP FOR THE ANSWER

#5741

SESK.INFO

STRAIGHT FACE How do you order a ladder? Call the rung number.

A Six feet **WHY** Falls are among the most common causes of serious work injuries. OSHA says solar installers facing falls of 6 feet or more need guardrails, safety nets or personal fall arrest systems.

HOME & YARD



Which NABCEP credential focuses on energy storage (battery) systems?

- A** PV Associate only
- B** Energy Storage Installation Professional
- C** A plumbing license

FLIP FOR THE ANSWER

#5745

SESK.INFO

STRAIGHT FACE Why did the battery go on summer vacation? He needed to recharge.

B Energy Storage Installation Professional **WHY** ESIP covers design, installation and commissioning decisions for battery energy storage systems. PV credentials focus on solar panels.

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