

WSJ Print Edition

*How Much Do You Know About
Home Solar Energy? Take This Quiz*



What percentage of the electrical grid is powered by solar? How long does it take to recoup your investment in solar panels? And more.

BY SIMON CONSTABLE

SOLAR POWER has long been at the center of the renewable-energy conversation. That's never been more true than now, as solar farms take off and more people add solar panels to their homes.

But how much do you really know about solar energy in the U.S.? You can test your knowledge here:

1. What portion of U.S. electrical grid power came from solar last year?

- A. 0.9%
- B. 3.9%
- C. 13.9% D. 23.9%
- E. 33.9%

2. Which state installed the most solar-energy capacity in 2023?

- A. California
- B. Delaware C. Ohio

D. Florida E. Texas

3. What federal tax credits can U.S. households get from installing solar panels on their property?

A. Nothing

B. Up to 5% of the cost C. Up to 30%

D. Up to 60% E. Up to 100%

4. How much of California's total electricity generation comes from solar?

A.

57%

B.

47%

C.

37%

D.

27%

E.

17%

5. The amount of energy from the sun's rays hitting the Earth for one hour would power the whole world for how long?

A. An hour

B. A day

C. A week D. A month

E. A year A. California

B. Delaware C. Texas D. Utah

E. Washington, D.C.

7. Solar panel prices have fallen. How much lower were prices in the U.S. in 2023 compared with 2011?

A. Roughly the same as in 2011

B. About 20% lower than in 2011

C. Half as much as in 2011

D. The data is inconclusive E. Approximately 90% lower

8. In 2020, 6% of residential solar panel systems were paired with storage batteries. What was the percentage at the end of March 2024?

- A.
5%
- B.
10%
- C.
15%
- D.
20%
- E.
25%

9. Which U.S. state gets the lowest portion of electricity from solar power?

- A. California B. Maine C. North Dakota
- D. Utah E. Wisconsin

10. How many years does it take, on average, for homeowners to recoup the costs of installing a residential solar panel system with lower-cost electricity?

- A. One or two years B. Three or four years
- C. Five or six years D. Seven or eight years

E. Nine or 10 years *Simon Constable is a writer in the Occitanie region of France. He can be reached at reports@wsj.com.*

6. How quickly installing solar panels on your home can pay for itself varies according to location, incentives and the cost of solar power and electricity. Which of the following locations has the fastest payback in terms of years?

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ANSWERS:

1. B.

Solar ranks below hydro and wind power in the U.S., according to the Energy Information Administration. Two reasons for solar's low contribution are the sun shines for only part of each 24-hour period and there is a lack of suitable battery storage.

2. E.

"Texas was at the top of the solar leaderboard in 2023, installing more solar than any other state," says the Solar Energy Industries Association. California remains the leading state in terms of ex-

EVA VÁZQUEZ

isting solar-energy capacity.

3. C.

U.S. households can recover as much as 30% of the cost through 2032 via federal tax credits. The Residential Clean Energy Credit applies to "qualified clean energy property" for your primary home in the U.S., according to the Internal Revenue Service. The IRS says there are limits. For example, you can't get a rebate that exceeds the amount you owe in taxes, although you may be able to carry forward to reduce taxes in future years. The credit percentage drops to 26% in 2033 and down to 22% in 2034. There are many state subsidies also.

4. E.

Solar, with 17%, is second only to natural gas with 37%, according to the California Energy Commission. Other sources include 13% for hydro, wind 11%, nuclear 9%, geothermal 5%, biomass 2% and coal 2%. All figures are rounded.

5. E.

According to the University of California, Davis, the sun has the potential to provide the world with a year's worth of energy in a single hour, or roughly 23,000 terawatts.

6. E.

It takes 3.52 years in Washington, D.C., according to Energy Sage's latest data from October 2024. The company provides consumer information on switching to affordable clean energy. Its website also has details of how fast solar panels recover their cost in your neighborhood.

7. C.

The average price of solar panels in 2023 in the U.S. was almost 56% less than in 2011, according to data from energy consultants Wood Mackenzie.

8. E.

25%, according to Wood Mackenzie. Benefits to homeowners include the ability to save money by harvesting solar power in the afternoon and using it in the morning, when electricity is more expensive and there is often less sunlight. The batteries also provide consumers with security for power in the event of a problem with the grid or a brownout.

9. C.

North Dakota at 0.01%, says the Solar Energy Industries Association. The state benefits more from wind energy, according to Solar Action Alliance, which provides information on the sector.

10. D.

On average it takes about seven or eight years before the investment in a residential solar project has been paid off by the homeowner's savings, according to Wood Mackenzie. The specific number will vary depending on the cost of solar installation, the amount of sunlight and the price of electricity in an individual's area. Wood Mackenzie says it finds that solarpanel installers and financiers don't tend to want to do a lot of business in areas with payback periods beyond 10 years.

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