

# Solar Vs. Wind Energy – Which is Better?

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The most successful renewable energy sources in the United States are wind and solar. The price reductions for residential solar panels over the past decade have made solar power more accessible than ever for homeowners. Meanwhile, *wind* energy production has grown from under 1% a decade ago to around 8.4% of the total national energy consumption. Solar grew to about 2.5% during the same period. So, wind energy adoption has exceeded solar so far. But, which actually offers the best environmental and economic option? The answer and the explanation of it might surprise you.

## Wind Power vs Solar Power Pros and Cons

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As we will see, framing a choice between solar and wind energy turns out not to be very meaningful. Likewise, the question of wind power vs solar power cost is not really an apples for apples comparison that can be made.

### Solar Panels

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Solar panels are installed on rooftops or ground mounted on residential properties. After tax credits, the systems currently cost between \$17,000 to \$23,000, depending on the size, complexity, and quality of equipment. Even with the prices dropping year after year, the investment cost is still an obstacle to faster growth of solar. But, homeowners who can afford the initial cost of solar panels or obtain financing can save as much as \$50,000 on electricity costs over a lifetime.

Most homeowners with solar panels will remain connected with their local electric company. This enables them to draw from the public power grid as needed and sell excess power produced by their panels to their electric company.

## Wind Turbines

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Wind turbines can also be tied to the grid and/or keep energy stored in a battery. But those are among the very few features they share in common with solar panels. To say that wind turbines are bigger than solar panel systems is an extreme understatement. Wind turbines are, of course, massive by comparison. Naturally, contrasting the cost to buy and install a wind turbine with the cost of buying and installing a group of solar panels on a house is not a reasonable comparison.

Wind turbines also produce optimally at comparatively very high altitudes. The heights at which land-based wind turbines for large-scale production are built has increased by nearly 60% over the past 25 years to almost 300 feet. So, understandably, local building and zoning laws typically do not permit residential installation.

## Contrast and Compare: Wind vs Solar Panel Performance

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**Wind turbines** capture approximately 50% of the wind energy passing through them. Wind turbines can also generate energy any time, day or night, so they can be maximally productive when properly located. But, to be most effective, wind turbines require wide open spaces without trees, buildings, hills, etc. That's why they're most popular in states like Texas, Kansas, and Illinois, and those with offshore wind farms like New Jersey and Virginia.

**Solar panels** capture approximately 20% of the solar energy passing through them, a much lower efficiency rate than wind turbines. Solar panels can generate some electricity even on overcast days, but not at night. Solar panels can fit on virtually any building, even in the most densely developed cities, like New York City, Chicago, and Los Angeles.

## Why is Solar Energy Better than Wind Energy Overall?

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*Answer:* It's only better for residential use, not necessarily for industrial or public power production. Both the wind and solar energy markets continue to grow at extraordinary rates.

Remember, overall, wind has gained a much larger share of the country's overall energy usage. But, that's because wind power is mostly utilized by industrial consumers and public utilities, while solar has proven incomparably more popular in the nationwide residential market. Wind power equipment simply takes too much space to make sense in residential settings, so, for homeowners, solar energy is naturally the far more practical option for going green.

As the illustration of the difference between solar and wind energy takes shape, it becomes clear that exploring the concept of solar vs wind power does not lead to a fruitful conclusion. There is no single “best” solution between the two for all applications. Determining which of these two renewable energy sources is best turns out to be just a question of location. Solar power currently can’t compete with wind farms out on the open ocean and wind turbines aren’t as practical as solar panels in dense urban areas.

So, for homeowners, solar power offers the best opportunity to contribute to a more sustainable world and save an enormous amount of money on electricity costs. And, although wind energy does not provide an individual residential option for most people, it will continue to be a primary source of renewable energy growth.

## **To Determine Your Home Solar Needs – Solarise Solar**

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A Solarise solar engineer will calculate how many solar panels you would need for whole-home solar, and for partial solar with partial public grid use. Your solar energy systems expert will also calculate for you how much of your electricity cost and fossil fuel consumption you can cut by going solar.

**For information on reducing your fossil fuel use and energy costs with solar, call Solarise Solar at (719) 315-3034, or contact us online for a FREE Energy Analysis.**

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