



# Direct power generation by solar energy in the home

Is direct solar energy a viable energy source?

Although direct solar energy provides only a small fraction of the global energy supply today, it has the largest technical potential of all energy sources. With technical improvements and cost reductions, it could see dramatically expanded use in the decades to come.

Where does solar power come from?

Any point where sunlight hits the surface of the earth is a potential location to generate solar power. Renewable energy technologies generate electricity from infinite resources and since solar energy comes from the sun, it represents a limitless source of power.

How do I choose the best way to use solar electricity?

Before deciding on the best way to use solar electricity at home, assess the potential solar energy that can be produced at your address. Because PV technologies use both direct and scattered sunlight to create electricity, the solar resource across the United States is ample for home solar electric systems.

How much electricity does Duke Energy generate from solar?

Today, nearly 5% of U.S. electricity comes from solar generation, almost 11 times as much as a decade ago. In 2022, Duke Energy and its subsidiaries had 180 utility-scale solar projects in 16 states and can generate more than 10,000 megawatts of electricity from wind and solar. Think you know solar now? Why not take our Solar Quiz!

How are direct solar energy technologies part of the broader energy framework?

Direct solar energy technologies are part of the broader energy framework, specifically contributing to: low-capacity energy demand; district heating and other thermal loads; PV generation characteristics and the smoothing effect; and CSP generation characteristics and grid stabilization.

How do solar panels generate electricity?

Solar panels generate electricity with no carbon emissions when light particles, called photons, reach the panel's surface. Each panel at a utility-scale solar installation is roughly 6 feet long and 3 feet wide and weighs about 50 pounds. Residential solar panels, on the other hand, can be as small as roof shingles.

These tools are great for getting started, but make sure to work with a solar installer for a custom estimate of how much power your solar energy system is likely to generate. For its analyses, NREL uses an average system size of ...

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