

# Average solar capacity factor





## Overview

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EIA estimates the average capacity factor in renewable energy as follows: a hydroelectric plant is 36-43%, a nuclear plant is 91-93%, a solar plant is 24-26%, and a wind plant is ~32-35%, a coal plant is ~41-61% and a combined cycle gas plant is ~49-57%.

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2024 ATB data for utility-scale solar photovoltaics (PV) are shown above, with a base year of 2022. The Base Year estimates rely on modeled capital expenditures (CAPEX) and operation and maintenance (O&M) cost estimates benchmarked with industry and historical data. Capacity factor is estimated for.

Time adjusted capacity for month rows is the summer capacity of generators in operation for the entire month; units that began operation during the month or that retired during the month are excluded. Time adjusted capacity for year rows is a time weighted average of the month rows. Capacity.

The average annual US solar capacity factor tracked closely to the norm in 2022, hovering near the mid-20% mark. But with a gap of more than 20 percentage points between apex and nadir, monthly metrics are a stark reminder of photovoltaic energy production seasonality — an element that compounds.

Between 2010 and 2024, the average capacity factor for utility-scale solar PV systems worldwide presented a mostly upward trend. In the latter year, the average capacity factor for utility-scale solar PV systems stood at Log in or register to access precise data. percent. Already have an account?

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According to the EIA, the average capacity factor for different power sources is



as follows: a hydroelectric plant is 36-43%, a nuclear plant is 91-93%, a solar plant is 24-26%, and a wind plant is 32-35%, a coal plant is ~41-61% and a combined cycle gas plant is ~49-57%. Now you can likely see why.

Based on 2018 data from the Independent Electricity System Operator (IESO), the 100MW Sol-Luce solar farm in Kingston Ontario the capacity factor was 17% in 2018. Using the U.S. Energy Information Administration (EIA) data from 2015 to 2018 for the 550MW Topaz solar farm in southern California, it. What is the average solar capacity factor?

Using the U.S. Energy Information Administration (EIA) data from 2015 to 2018 for the 550MW Topaz solar farm in southern California, it had an average capacity factor of 26.7%. According to the EIA, the average solar CF for the US in 2018 was 26.1%.

What is the average capacity factor for different power sources?

According to the EIA, the average capacity factor for different power sources is as follows: a hydroelectric plant is 36-43%, a nuclear plant is 91-93%, a solar plant is 24-26%, and a wind plant is 32-35%, a coal plant is ~41-61% and a combined cycle gas plant is ~49-57%.

What is the average capacity factor for utility-scale solar PV systems?

Between 2010 and 2022, the average capacity factor for utility-scale solar PV systems worldwide presented a mostly upward trend. In the latter year, the average capacity factor for utility-scale solar PV systems stood at 16.9 percent. Get notified via email when this statistic is updated. Statista Accounts: Access All Statistics.

What is the capacity factor of a solar farm?

Based on 2018 data from the Independent Electricity System Operator (IESO), the 100MW Sol-Luce solar farm in Kingston Ontario the capacity factor was 17% in 2018. Using the U.S. Energy Information Administration (EIA) data from 2015 to 2018 for the 550MW Topaz solar farm in southern California, it had an average capacity factor of 26.7%.

What is the average solar CF?

According to the EIA, the average solar CF for the US in 2018 was 26.1%. These numbers represent utility-scale installations. Smaller-scale and residential rooftop PV would be lower. It is possible to estimate this factor for



any location using The National Renewable Energy Laboratory (NREL) online tool.

How many sources of new solar capacity are there?

These two assumptions yield four sources of new solar capacity, each accounting for 25% of total capacity: Utility-scale capacity in the Sun Belt with an average capacity factor of 27.5% (Table 2) Utility-scale capacity outside the Sun Belt with an average capacity factor of 18.4% (Table 2)



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### 2022 monthly US solar capacity factors underscore winter doldrums

S& P Global Commodity Insights estimates show average US solar capacity factors languishing in the low to mid-double-digit territory in November, December and January -- a time of year ...

### Utility-Scale PV , Technologies , Electricity , ATB , NREL

The capacity factor is influenced by the hourly solar profile, technology (e.g., thin-film or crystalline silicon), the bifaciality of the module, axis type (i.e., none, one, or two), shading, expected ...



### What Is the Solar Capacity Factor?

Each of these factors plays a crucial role in determining the average power output of the solar PV system over a specific period, ultimately providing insights into its solar capacity. Understanding the Solar Capacity Factor



### Monthly generator capacity factor data now available ...

Geothermal and waste technologies operate fairly steadily and at high capacity factors. Intermittent renewable sources like solar and



wind tend to have lower capacity factors, as their output varies with the availability of the ...



Solar capacity and capacity factor

According to the EIA, the average solar CF for the US in 2018 was 26.1%. These numbers represent utility-scale installations. Smaller-scale and residential rooftop PV would be lower. It is possible to estimate this factor for any location using ...



Solar power in the United Kingdom

Solar power has a growing role in electricity production in the United Kingdom, contributing around 5% of the UK's annual power generation in 2024. [1] As of 2025, on sunny days, it provides over 30% of the UK's power consumption at ...



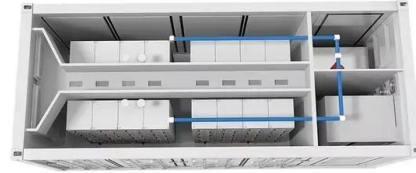
Solar PV capacity factors in the US - the EIA data

Earlier I noted that the average solar PV capacity factor of approximately 18% at 1MW is also broadly comparable to the 16% estimate in my previous post, which was based dominantly on plants less than one MW in size.



## Usual sun states shine bright at top of US solar capacity factor

The weighted average U.S. solar capacity factor stayed flat year over year in 2021. This possibly reflected greater operational efficiency, as more than 58% of the states individually operating in ...



## Solar capacity and capacity factor

Based on 2018 data from the Independent Electricity System Operator (IESO), the 100MW Sol-Luce solar farm in Kingston Ontario the capacity factor was 17% in 2018. Using the U.S. Energy Information Administration (EIA) data from ...

## [Utility-Scale Solar , Energy Markets & Policy](#)

PPA prices have largely followed the decline in solar's LCOE over time, but newly signed longer-term PPA prices have increased since 2021, to an average of \$35/MWh (levelized, in 2023 dollars). Solar's average energy and capacity ...



## [What is Capacity Factor? A Beginner's Guide](#)

According to the EIA, the average capacity factor for different power sources is as follows: a hydroelectric plant is 36-43%, a nuclear plant is 91-93%, a solar plant is 24-26%, and a wind plant is 32-35%, a coal plant is ~41 ...



### Utility-Scale Solar , Energy Markets & Policy

Solar's average energy and capacity value (i.e., ability to offset costs of other power generation sources) across the U.S. was \$45/MWh in 2023. Solar's average market value was lowest in CAISO (\$27/MWh), the market with the ...



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