

## Solar incentives windhoek

So far, we have conducted calculations to evaluate the solar photovoltaic (PV) potential in 10 locations across Namibia. This analysis provides insights into each city/location's potential for harnessing solar energy through PV installations.

Seasonal solar PV output for Latitude: -22.5674, Longitude: 17.0849 (Windhoek, Namibia), based on our analysis of 8760 hourly intervals of solar and meteorological data (one whole year) retrieved for that set of coordinates/location from NASA POWER (The Prediction of Worldwide Energy Resources) API:

To maximize your solar PV system's energy output in Windhoek, Namibia (Lat/Long -22.5674, 17.0849) throughout the year, you should tilt your panels at an angle of 21° North for fixed panel installations.

As the Earth revolves around the Sun each year, the maximum angle of elevation of the Sun varies by +/- 23.45 degrees from its equinox elevation angle for a particular latitude. Finding the exact optimal angle to maximise solar PV production throughout the year can be challenging, but with careful consideration of historical solar energy and meteorological data for a certain location, it can be done precisely.

We use our own calculation, which incorporates NASA solar and meteorological data for the exact Lat/Long coordinates, to determine the ideal tilt angle of a solar panel that will yield maximum annual solar output. We calculate the optimal angle for each day of the year, taking into account its contribution to the yearly total PV potential at that specific location.

If you can adjust the tilt angle of your solar PV panels, please refer to the seasonal tilt angles below for optimal solar energy production in Windhoek, Namibia. As mentioned earlier, for fixed-panel solar PV installations, it is optimal to maintain a 21° North tilt angle throughout the year.

Our recommendations take into account more than just latitude and Earth's position in its elliptical orbit around the Sun. We also incorporate historical solar and meteorological data from NASA's Prediction of Worldwide Energy Resources (POWER) API to assign a weight to each ideal angle for each day based on its historical contribution to overall solar PV potential during a specific season.

This approach allows us to provide much more accurate recommendations than relying solely on latitude, as it considers unique weather conditions in different locations sharing the same latitude worldwide.

Windhoek is located in the central highlands of Namibia, so the topography around Windhoek is mostly hilly with some flat areas. The nearby area that would be most suitable for large scale solar PV installations are those flat areas which have good access to direct sunlight and minimal shading from trees or other structures. The surrounding hills can also provide a great location for solar installations as they can be used to maximize



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exposure to direct sunlight while minimizing any shading issues.

Namibia ranks 79th in the world for cumulative solar PV capacity, with 145 total MW's of solar PV installed. Each year Namibia is generating 57 Watts from solar PV per capita (Namibia ranks 49th in the world for solar PV Watts generated per capita). [source]

Do you have more up to date information than this on incentives towards solar PV projects in Namibia? Please reach out to us and help us keep this information current. Thanks!

The solar PV analyses available on our website, including this one, are offered as a free service to the global community. Our aim is to provide education and aid informed decision-making regarding solar PV installations.

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