



# Solar energy for homes asmara

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Note: The Tropics are located between 23.5° North and -23.5° South of the equator.

So far, we have conducted calculations to evaluate the solar photovoltaic (PV) potential in 5 locations across Eritrea. This analysis provides insights into each city/location's potential for harnessing solar energy through PV installations.

Link: [Solar PV potential in Eritrea by location](#)

Seasonal solar PV output for Latitude: 15.3301, Longitude: 38.9325 (Asmara, Eritrea), 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 Asmara, Eritrea (Lat/Long 15.3301, 38.9325) throughout the year, you should tilt your panels at an angle of 15° South 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 Asmara, Eritrea. As mentioned earlier, for fixed-panel solar PV installations, it is optimal to maintain a 15° South 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.



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We've added a feature to calculate minimum solar panel row spacing by location. Enter your panel size and orientation below to get the minimum spacing in Asmara, Eritrea.

This approach ensures maximum space efficiency while avoiding shading during critical times, as the Winter solstice represents the worst-case scenario for shadow length.

Contact us for free full report

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