

What is the average solar irradiance in Libya?

Libya is one of the biggest countries in Africa with an area about 1,760,000 km², lies between latitudes 19° and 34°N, and longitudes 9° and 26°E. The total average of global solar irradiance on the horizontal surface ranges between 1600 -2300 kWh/m². These values correspond to average daily range between 5 and 7 kWh/m².day,...

How much solar power does Libya have?

In-depth south regions of Libya, the daily average solar PV power potential is greater than 6.5 kWh/kWp, although the annual average is greater than "2045 kWh/kWp". Fig. 5. Solar photovoltaic power potential in Libya (GSA, 2020).

Are solar PV systems a good investment in Libya?

In Libya, the solar photovoltaic (PV) systems are encouraging for the future, due to incident solar radiation is greater than the minimum required rate across the country (Hewedy et al., 2017). Based on that from a techno-economics point-view, there is a need to develop substantial energy resource solutions.

What is the average horizontal irradiation of solar radiation in Libya?

In-depth south regions of Libya, the average daily global horizontal irradiance distribution is about 7.1 kWh/m², although the annual average is about "2556 kWh/m²". Fig. 4. Global horizontal irradiation of solar radiation in Libya (GSA, 2020).

Could Libya be a solar energy exporter?

The desert technology (DESRT-TEC) is one of the largest projects; there was proposed that Libya would be one of the exporters of solar power generated from solar energy to Europe (Griffiths, 2013). The aims of that project to provide Europe Union countries with energy generated from the sun in North Africa and the Middle East countries.

How much sunlight does Libya have?

The 'Libyan Renewable Energy Authority' has estimated that the average solar sunlight hours are approximately "3200" hours/year and that the average solar radiation is 6 kWh/m²/day (Mohamed et al., 2013).

The aim of this study is to compare seven empirical models to find out which of them is the most efficient for estimating monthly global solar radiation. 3-years period data (2018-2020) used for ...

Bannani et al. [6] presented a simplest model, which is known Angstrom-Page model, to estimate monthly average solar radiation on a horizontal surface in eleven cities in Libya based on...

In this paper, seven different empirical models classified into three categories, (1) sunshine duration-based models, (2) relative humiditybased models (3) air temperature based-models, ...

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This study addresses the current situation of solar photovoltaic power in Libya, the use of solar energy, and proposes strategies adopted by Libya to encourage future applications of solar photovoltaic energy and electricity generation.

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A new model, as well as eight models which presented in the literature for estimating global solar radiation on the horizontal surface using only sunshine duration are presented, called reverse model, based on measured global horizontal irradiance data collected in Tripoli during 2015.

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In order to estimate the monthly average global radiation, regression equations for eleven stations in Libya are

fitted, using monthly average hours of sunshine duration as predictors.

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