

# **How much is the wind and solar complementarity of Oman's solar container communication stations**





## Overview

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Renewable energy has been used as an alternative solution to fossil fuels aiming to supply the increasing energy demand while reducing greenhouse gas emissions. Solar and wind energy are prominent.

Does Oman have solar power?

Oman is blessed with abundant solar and wind energy resources, which strengthens the confidence to establish the solar PV systems throughout the Sultanate of Oman. It experiences the average 8 h of sunshine per day during winter and up to 15 h per day during summer, with an average radiation per day approximately 5 kWh/m<sup>2</sup>.

Which energy source contributes the most to electricity generation in Oman?

In Oman, natural gas contributes the maximum share to electrical power generation. The cost of avoided carbon emission due to the solar PV generation system [81, 82] can be calculated in terms of social cost of carbon (C C O<sub>2</sub> avoided) by the following equation (26).

Does solar PV work in Oman?

In Oman, as a demo Zero energy building is constructed and solar PV performance on ZEB was analysed in some research papers [26, 27]. A 20 kW solar PV is installed on the rooftop of ZEB building located at Sultan Qaboos university and analysed the building energy performance and energy balance.

Why do solar panels perform better in Oman during summer?

The findings showed that performance ratio at all locations decreases during the summer compared to non-summer periods due to high temperature experienced in Oman. Ibri is the top location in Oman suitable for solar PV projects. Their annual energy output is further increased by regular cleaning of the solar PV panels.



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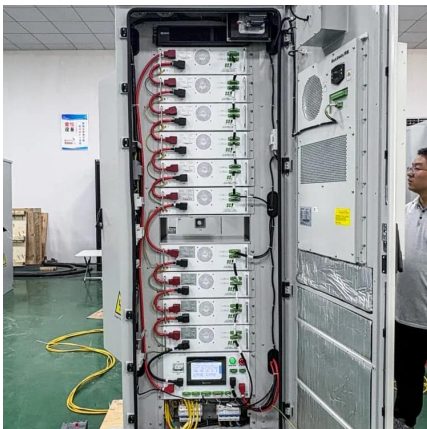
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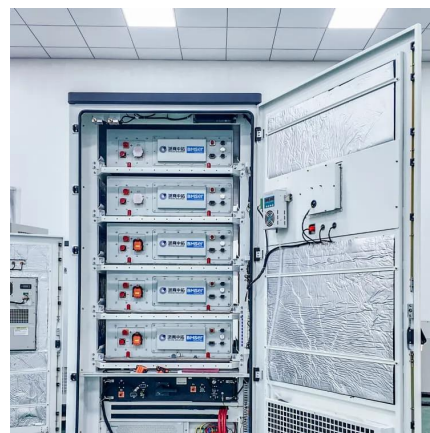
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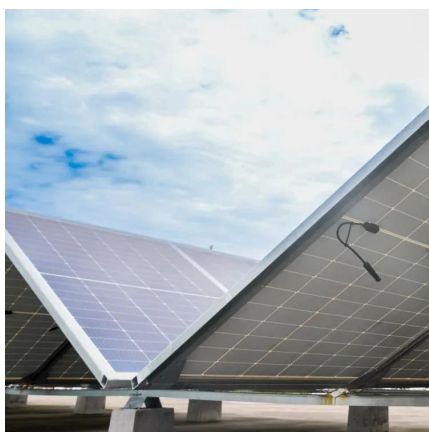
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Onshore wind: Potential wind power density ( $\text{W/m}^2$ ) is shown in the seven classes used by NREL, measured at a height of 100m. The bar chart shows the distribution of the country's land area ...



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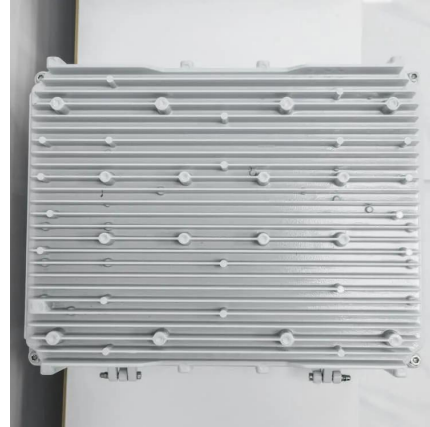
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