Foreign Literature on Photovoltaic Microgrids

Are solar PV microgrids suitable for an archipelagic country like Indonesia?
The implementation of solar PV microgrids is suitablefor an archipelagic country like Indonesia. Situated in the equator with a tropical climate,almost half of Indonesia's renewable potential comes from solar energy ,. Rural,remote,and undeveloped communities in the country can obtain co-benefits from this system's utilization.

How can a microgrid improve the reliability of solar PV?
In order to overcome the problems associated with the intermittency of solar PV and enhance the reliability,energy storage systemslike batteries and/or backup systems like diesel generators are commonly included in the microgrids [11,12].

Can solar PV microgrids provide electricity in rural and remote areas?
Solar PV microgrids can provide electricity in rural and remote areasby overcoming the high cost of grid expansion ,. However,some reconsider the system's attractiveness because of its reliability and bankability. Many reported that the system's performances depend on environmental conditions ,,,,,.

Do equatorial countries have low solar PV microgrid penetration?
Despite its potential abundance,most equatorial countries have low solar PV microgrid penetrationon their grids. Its deployment is hampered by prevailing challenges,such as reliability and bankability. The paper outlines the critical barriers and drivers in developing solar PV microgrids in the tropical region.

What is a PV-based microgrid?
The name implies the principle component in a PV-based microgrid is the solar PV system. However,the generated output power of a PV system is dependent on the weather condition,that is,solar irradiance and temperature; and the intermittency in the solar irradiance causes fluctuations in the generated output power of the solar PV system.

Can a solar photovoltaic microgrid be used in tropical countries?
Solar photovoltaic (PV) microgrid has the potential to electrify and decarbonise rural communities in tropical countries,such as Indonesia. The tropical region receives a significant amount of solar radiation throughout the year,benefiting from its equator position.

Distributed energy resources (DERs) such as solar photovoltaic (PV) modules, wind turbines (WTs), combined heat and power (CHP) units, and controllable loads such as electric vehicles (EVs) are expected to play a considerable role in future electricity supply because of their significant benefits such as carbon emissions reduction, energy efficiency ...

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In literature [54] and [55], an unconventional method is suggested to increase the inertia of a PV system through inertia emulation as per the topology as shown in Figure 3.5. The inertia ...

Solar photovoltaic (PV) direct current (DC) microgrids have gained significant popularity during the last decade for low cost and sustainable rural electrification.

A Literature Review of Microgrids:A functional layer based classification F. Martín*, A. Sánchez-Miralles, M. Rivier ... photovoltaic panels), nano-loads and Picogrids. Nanogrids may also ...

The world is undergoing an irreversible shift towards clean energy. Microgrids are recognized as a key technology that holds significant potential to make a substantial difference in this regard.

Solar Photo Voltaic (PV) powered community microgrids are a promising sustainable solution for neighborhoods, residential quarters, and cities in sub-Saharan Africa (SSA) to meet their energy ...

To counter these drawbacks, soft computing MPPT algorithms, such as metaheuristic and artificial intelligence (AI) algorithms, have been presented in the literature. PV performance under PSC is ...

This article aims to develop an optimal sizing of microgrids by incorporating renewable energy (RE) technologies for improving cost efficiency and sustainability in urban ...

Energy Sources: A Literature Review Yimy E. García Vera 1, Rodolfo Dufo-López 2, * and José L. Bernal-Agustín 2 1 Electronic Engineering, San Buenaventura University, Bogotá 20, Colombia ...

Recently, direct current (DC) microgrids have gained more attention over alternating current (AC) microgrids due to the increasing use of DC power sources, energy storage systems and DC loads. However, efficient management of these microgrids and their seamless integration within smart and energy efficient buildings are required. This paper ...

In addition to focusing on the modeling of photovoltaic grid-connected systems to improve their performance, domestic and foreign scholars have also carried out studies on the frequency stability ...

The paper performs a review and classification of MGs? according to four functional layers inspired in the division of the Smart Grid architecture model described by the European Commission in [6].The layers described in [6] are: the Component layer, the Communication layer, the Information layer, the Function layer and the Business layer. In order ...

The Grid-PV system has higher GHG emissions of 12,341.5 kg year -1, while the PV-Genset system has lower emissions of 4775.57 kg year -1. The use of solar thermal ...

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The global installed solar capacity over the past ten years and the contributions of the top fourteen countries are depicted in Table 1, Table 2 (IRENA, 2023). Table 1 shows a tremendous increase of approximately 22% in solar energy installed capacity between 2021 and 2022. While China, the US, and Japan are the top three installers, China"s relative contribution ...

Solar photovoltaic microgrids are reliable and efficient systems without the need for energy storage. However, during power outages, the generated solar power cannot be used by consumers, which is one of the major limitations of conventional solar microgrids. This results in power disruption, developing hotspots in PV modules, and significant loss of generated power, ...

From the review of literature, the most preferred energy sources in a PV-based microgrid are found to be solar PV, batteries, and DG that ensures the reliability and continuity of the power supply.

Hybrid photovoltaic-regenerative hydrogen fuel cell (PV-RHFC) microgrid systems are considered to have a high future potential in the effort to increase the renewable energy share in the form of ...

Due to the importance of the allocation of energy microgrids in the power distribution networks, the effect of the uncertainties of their power generation sources and the inherent uncertainty of the network load on the problem of their optimization and the effect on the network performance should be evaluated. The optimal design and allocation of a hybrid ...

This study aims to identify the main challenges and opportunities in solar PV microgrids development from different multi-stakeholder perspectives, evaluate the ...

Microgrids are power distribution systems that can operate either in a grid-connected configuration or in an islanded manner, depending on the availability of ...

the literature related to this theme embraces it from a perspective beyond the scope of the microgrids themselves. In fact, the business layer of a microgrid is strongly related to the policies ...

The context is a small-scale photovoltaic installation in Greece, which increased photovoltaic penetration in the electricity market and reduced photovoltaic costs. EL-Shimy [14] emphasized that the percentage of power load and the number of battery replacements have a significant impact on selecting the optimal dimensions of a self-sufficient photovoltaic system ...

The final phase 3, at Camp Smith, Hawaii, finished in late 2015; it used new and existing generation sources to support the loads of the entire base. A more detailed description of SPIDERS, including the project"s cyber-security components, and comparisons to other military microgrids are available in the literature [65], [67].

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A literature review and future perspectives on maintenance optimization Maintenance management: literature review and directions 4 5 6 Peinado Gonzalo et al Shafiee, M. Villarini et al 7 Sanz-Bobi, Miguel A 8 Bosman, Lisa B. Leon-Salas, Walter D.,Hutzel, William and Soto, Esteban A. Chebel-Morello et al Survey of maintenance management for photovoltaic power ...

This paper presents a literature review of energy management in microgrid systems using renewable energies, along with a comparative analysis of the different optimization objectives, constraints ...