



# Mauritius hybrid power generation system

Does Mauritius need a battery energy storage system?

Mauritius aims to increase the share of renewable energy sources in its energy mix, which leads to fluctuating power injection. To reduce this fluctuation from variable renewable energy sources, the installation of Battery Energy Storage Systems (BESS) is required.

How does Mauritius generate energy?

Mauritius generates energy through various means including wind farms, solar energy, biomass, wave, and waste-to-energy projects. Currently, bagasse (sugarcane waste) is the leading source, contributing 13.3 percent to the renewable energy generation. Mauritius derives other renewable electricity from hydro, wind, landfill gas, and solar.

How has the Mauritian government changed the energy sector?

The Mauritian government has made significant changes in the energy sector. In particular, it created the Mauritius Renewable Energy Agency (MARENA) in 2016 to promote the use of renewable energy in Mauritius.

Does Mauritius use solar energy?

Mauritius has an attractive potential for solar energy, with an average annual solar radiation value of some 6 kWh/m<sup>2</sup>/day. Solar photovoltaic (PV) energy is an option due to the almost year-round intensive sunlight. To achieve the target of 60 percent renewable energy by 2030, Mauritius has commissioned six more solar farms.

Are there integrated photovoltaics in Mauritius?

According to MARENA, there are currently no building integrated photovoltaics in Mauritius. Energy efficiency is now one of the main criteria in the design of public buildings and in rental of private buildings. The Green Building Council Mauritius was set up in 2009 to promote green building and is a member of World Green Building Council.

What is the Smart Grid Roadmap for Mauritius?

The Smart Grid Roadmap for Mauritius was launched in December 2018 to help the CEB integrate new technologies in the power system, enhancing reliability, safety, and security.

This paper aims at critically analyzing the present and the proposed energy resource mix in Mauritius in order to make recommendations for a 100% renewable energy system for the island by 2050.

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Hybrid power system offers supply reliability and energy security. Hybrid renewable energy systems can also be used for sustainable electrification of remote areas. Hybrid renewable energy plants with integrated battery energy storage system ensure that excess renewable energy produced or curtailed is not available [28] .

Today's more "agile" systems (Clark and Bradshaw, 2004) interconnect power systems with renewable on-site power generation that may not be controlled by the public utility, as in the case of Mauritius and elsewhere. Agile systems can underpin the new energy paradigm for SIDS.

In this paper, we develop a methodology for optimum sizing of a hybrid renewable energy system with and without battery backup. The considered hybrid system consists of three energy sources-wind turbine, PV system and diesel generator. Among them, two ...

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