CUCKOO SEARCH ALGORITHM FOR SIZING OPTIMIZATION IN GRID-CONNECTED PHOTOVOLTAIC SYSTEM

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ABSTRACT

Cuckoo Search algorithm is a new metaheuristic optimization algorithm that was recently developed by Yang and Deb in year 2009. This paper presented the configuration of a photovoltaic (PV) array of a grid-connected photovoltaic (GCPV) system by using Cuckoo Search (CS) algorithm. The best PV module and inverter that can produce the optimal number of PV modules per strings and the optimal number of parallel PV strings was determined by using CS in order to make the GCPV system produce higher expected annual energy output with the given roof space.

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CHAPTER 1

1.0 INTRODUCTION

1.1 Background

Solar energy is one of the renewable energy. Nowadays, the uses of solar energy can helps to reduce dependence on the fossil fuels which uncontrolled usage will make it finish faster. Besides that, the price of fossil fuels also becomes increasing day by day and it will create economic instability. Solar energy also helps to drive clean technologies to market.

Solar energy is widely to be the energy source in the future. The GCPV system is a famous PV system in which it makes use of solar enegy to produce electricity. It is connected to the local electricity grid where it allows any excess power produced to feed the electricity grid and it can be sell to the utility. This GCPV system usually used in developed areas for homes and businesses. [1]

Most of people decided to use PV systems because it can produce electricity without air or noise pollution in which they can help to reduce the pollution. At the same time, they install the GCPV system to invest in an energy producing improvement to their property. They also can save their money from paying electric bills and gained money from selling their excess electrical energy.