

Battery-Equivalent DC Supply from Leakage Current: PV to Transformer-less Inverter Topology

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ABSTRACT

Solar panels are highly used for electricity generation, which can be gotten through switching-based transformer-less inverters. Hence, grid system with no galvanic-isolation, is taking the peak level in the world, which is effective and delivers power with enhanced efficiency. The PV generation presented here is for stand-alone system installed in remote areas on when and as the resulting power gets connected to electronic load installation instead of being tied to the grid. In this paper will be discussed the use of leakage current. Transformer-less inverter topology for exploring the issue of common mode (CMV) voltage development, which can be utilized as a Battery-Equivalent DC Supply after adding on places as when found suitable for such installations.

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1. INTRODUCTION

Solar panel is the combinations of many solar cells where the most important part is silicon solar cells which never run out. Generally, it gets energy from the rays of sunlight (photons) and earth radiations that come from sun light which is protect out body from ultra violet (UV) that actually harmful and affected human body. Now-a-days, solar cells set up in roof top that has household applications and hot water system. In Malaysia Perspective, maximum energy is used in industrial purposes around 43.4% in 2009 and although Malaysian will produce 190 megawatt power within 2020, but they were predicted that they will be produced 18700 megawatt power within 2050 through solar energy. In addition, this energy will be the more producible and effective energy within few years [1]. Moreover, government support is increased enormously day by day in Australia for using solar panel for household applications [2].

Solar panels are also known as modules that actually contain with photovoltaic panel which is made from silicon and in addition it transforms electricity from the sunlight rather than heat [3-5]. In historical point of view, PV panel first discovered by France scientist Edmond Becquerel in 1939 and after 15 years the American scientists Daryl Chapin, Calvin Fuller, and Gerald Pearson were developed the silicon photovoltaic (PV) cell. Hence, it has been developing until now with facing various problems and achieving huge success. In addition, Photovoltaic (PV) is becoming more popular in worldwide within few decades due to less expensive. To do so, Building Integrated Photovoltaic (BIPV) is used to reduce the manufacturing cost which is more applicable for urban areas [6]. Moreover, photovoltaic (PV) panels are helped to reduce the cost for government provided power electric supply as well which is actually very economical for industrial purposes [7-8] and the implementations of using photovoltaic panel in the case of economical benefits for long term energy planning view [9].