

ENERGY STORAGE SYSTEM WITH MULTILEVEL INVERTER FOR DISTRIBUTED GRID APPLICATION

Sunny K Darji¹, Jigar K Parmar² & Gajendra R Patel³

^{1,2}Scholar, Department of Electrical, SPU, Visnagar, Gujarat, India

³Assistant Professor, Department of Electrical, SPU, Visnagar, Gujarat, India

ABSTRACT

Solar energy is the major source of power. Renewable energy sources such as wind-turbine and photovoltaic power generators may make the power grid unstable due to their output fluctuations. Battery energy storage systems (BESSs) are being considered as a countermeasure for this issue. This study presents a battery storage system (BSS) based on a cascaded H-bridge inverter applied to a medium-voltage grid. The BSS is composed of eight equal series connected H-bridge converters, without bulky transformers, for connection to a distribution grid. The BSS is able to keep working even with a failure of one of its converters. Inverters of PV system based distributed generation (DG) are subjected to wide changes in the inverter input voltage, thus demanding a buck-boost operation of inverters. Further the inverter size, weight, and cost are increased. It is designed transformerless inverter that can be operated over a wide DC input voltage range, making it suitable for distributed generation applications.

KEYWORDS: *Battery Energy Storage Systems, Frequency Stability, Multilevel Converters, Transformer Less Inverters, Active-Power Control, SOC (State-Of-Charge) Balancing*

Article History

Received: 19 Mar 2018 | Revised: 28 Mar 2018 | Accepted: 03 Apr 2018
