

## **A Quasi Z-Source Based Full Bridge Isolated DC-DC Converter as a Power Module for PV System Connected to HVDC Grid**

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**Abstract :** Grid connected photovoltaic (PV) power system is to be developed in the direction of large-scale, clustering. Large-scale PV generation systems connected to HVDC grid have many advantages compared to its counterpart of AC grid, and DC connection is the tendency. DC/DC converter as the most important device in the system, has become one of the hot spots recently. The paper proposes a Quasi Z-Source(QZS) based Boost Full Bridge Isolated DC/DC Converter(BFBIC) topology as a basis power module and combination through input parallel output series(IPOS) method to improve power capacity and output voltage to match with the HVDC grid. The topology has both traditional voltage source and current source advantages, it permit the H-bridge short through and open circuit, which adopt utility duty cycle control and achieved input current and output voltage balancing through input current sharing control strategy. A  $\pm 10\text{kV}/200\text{kW}$  system model is built in MATLAB/SIMULINK to verify the proposed topology and control strategy.

**Keywords :** PV Generation System, Cascaded DC/DC converter, HVDC, Quasi Z Source Converter

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