

عنوان مقاله:

Design of A Single-Phase Transformerless Grid-Connected PV Inverter Considering Reduced Leakage Current and LVRT Grid Codes

محل انتشار:

مجله بهره برداری و اتوماسیون در مهندسی برق، دوره 9، شماره 1 (سال: 1400)

تعداد صفحات اصل مقاله: 11

نویسندگان:

F. Mohammadi - دانشگاه صنعتی امیر کبیر تهران

J. Milimonfared - دانشگاه صنعتی امیر کبیر تهران

H. Rastegar - دانشگاه صنعتی امیر کبیر تهران

.M. Farhadi-Kangarlu - Faculty of Electrical and Computer Engineering, Urmia University, Urmia, Iran

خلاصه مقاله:

A new single-phase transformerless grid-connected PV inverter is presented in this paper. Investigations in transformerless grid-connected PV inverters indicate the existence of the leakage current is directly related to the variable common-mode voltage (CMV), which is presented in detail. On the other hand, in recent years it has become mandatory for the transformerless grid-connected PV inverters to satisfy new grid-codes such as low-voltage ride-through (LVRT) capability via injecting reactive power during grid faults. Therefore, in this paper, the design of the proposed topology is based on retaining the constant CMV to suppress the leakage current and also to provide reactive power injection capability during grid faults. The control strategies for injecting reactive power in the LVRT condition are also examined. To validate the presented theoretical concepts, the performance and dynamic response of the proposed transformerless PV inverter are investigated by MATLAB/Simulink and the simulation results are presented and discussed.

کلمات کلیدی:

اینورتر PV متصل به شبکه بدون ترانسفورماتور، جریان نشتی، ولتاژ مد مشترک، LVRT

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1811062>

