Abstract:

The incorporation of renewable energy technologies such as photovoltaic (PV) systems into traditional electrical grid networks is a difficult challenge because of their unreliable form of producing electricity. The challenge includes the disconnection of PV system from the grid under fault condition, which further leads to instability in the grid integrated PV system and results in system wide power outages. The PV system must remain attached with the grid under fault condition according to modern low voltage ride through (LVRT) grid codes and support in a similar manner as conventional plants. Therefore, in this paper, four different types of control strategies are designed and analyzed to improve LVRT capability of PV station. The comprehensive simulation of the grid-tied large-scale PV station is conducted using PSCAD/EMTDC to assess the feasibility of the suggested control scheme.