

Grid Integration Compatibility Functions of PV Inverters

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Abstract

Solar photovoltaic (PV) is the dominant type of distributed energy resources (DER) technology interconnected to electric distribution systems worldwide and deployment of PV systems continues to increase rapidly. The key drivers behind the massive deployment of Solar PV Technologies including the continuous drop of PV energy price that is currently close to conventional power generation technologies especially for large scale PV Parks, in addition to the successful implementation of governmental incentives and financial schemes for Solar PV technology deployment. In the past, with low penetration level of PV generation, the grid connected PV systems are not required to support the grid, but currently with this high level of PV penetration into electrical power systems, worldwide Grid code requirements has been evolved to identify the required performance features of PV power plants to support grid operation and stability. The paper will focus on some of the compatibility functions of PV grid tied Inverters to support grid interconnection requirements. Namely, the following features will be addressed

- Active Power Control (Ramp Control)
- Reactive power control
- Dynamic Vs Static Reactive Support
- Low Voltage Ride Through (LVRT)

Link for full paper

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IEEE Member, Affiliate Member of European Renewable Energy Center, IEC TC-88 (Wind Turbines) Working Group Member, IEEE Standard Association and PES Member Power Engineering Society Transaction Papers Reviewer. Mohamed is currently Electrical Engineering group supervisor for SUEZ project, in addition Mohamed is a member of PGESCO Renewable Energy Group. Mohamed Completed several professional development activities in Renewable Energy Technologies, Smart Grid and Renewable Energy Integration at several International institutions, TU Delft University Netherland, University of Washington USA, and Renewable Energy Center Germany