

Abstract:

The improper grid control can degrade overall grid performance and stability. There exists huge uncertainty in accurate evaluation of the fact that microgrid control schemes might have an on-grid stability. This project adopts an incremental approach towards developing microgrids in which distributed controllers were characterized for microgrids. Control architectures for microgrids have been simulated with emphasis on modulation index and phase lock loop implementation.

Distributed generation using Microgrids is proposed here as a way forward using a number of low voltage distributed generation sources. A microgrid system of 100KW was modeled in grid tied mode of operation using Phased Locked Loop (PLL) controllers. Architecture of Pulse Width Modulator (PWM), universal bridge, wind turbine characteristics have been characterized. A technical inter- comparison of microgrids is presented for the provinces of Pakistan including KPK and Punjab in terms of optimized controlling strategies and related performance indices.