

A Microturbine Interface System with LVRT Capability

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Abstract

Microturbine Units (MTU) are used widely as distributed generators for their proved advantages. This paper presents an interface system for the Microturbine Unit (MTU) based on back-to-back converter to operate in grid connected and islanding modes. Besides regulating the active power fed from the MTU, during the grid-connected mode, the proposed interface system regulates the Point of Common Coupling (PCC) voltage at its rated value. Moreover, the proposed interface system is controlled to have a Low Voltage Ride-Through (LVRT) capability by feeding the grid with reactive power during grid faults. Furthermore, the proposed interface system keeps the voltage and frequency at the load terminal during the islanding mode of operation with the same control structure. Simulation results are provided to evaluate the dynamic performance of the proposed MTU interface system at the different modes of operation.

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