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# DESIGN AND ANALYSIS OF DF-SST COORDINATION WITH DC MICROGRID

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***ABSTRACT***

***The electrical power system is one of the most effective components of the infrastructure on which modern society depends. It delivers electrical energy to industry, commercial and residential consumers meeting the ever-growing demand. Major generation capacity relies on fossil fuels and contributes significantly carbon dioxide emission into the world's atmosphere with negative scenario for the global warming and energy crisis. To satisfy both the increasing power demand and mitigate the carbon dioxide emissions, it needs an electrical power system. A micro grid is an evolved grid system that manages power demand in a sustainable, reliable and economic manner. A novel distributed power management scheme for microgrid with the main utilitygrid which is enabled by the doubly fed solid state transformer (DF-SST). In this scheme microgrid consist of distributed renewable energy resources (DRERs) and hybrid energy storage (HES). HES supports DC microgrid during the transient periods to control the DC bus voltage. The high frequency power is blocked by the DF-SST automatically the low frequency power is shared by the battery and DRERs. Converters of DF-SST are controlled by the pulse width modulation (PWM) technique. Several operating modes of battery are defined and it is involved into the system power management strategy. The SOC is decided by the distributed control algorithm, which guarantees the full utilization of each module in the intelligent microgrid.***

***KEYWORDS: Intelligent microgrid system, High frequency transformer, power management, Battery, variable load.***

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