

## **SMART GRID FOR OPTIMAL ENERGY MANAGEMENT USING RENEWABLE ENERGY**

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Thirst for energy is increasing significantly with increase in economy around the world which burdens conventional grid (CG) due to peak demand, energy deficit and carbon emission, but major part of continents has plentiful wind and solar energy which can be harnessed locally to minimize it. Major objective of this research is to reduce the peak power deficit present in CG system and to provide a reliable power supply even in case of grid failure or during blackout. In this paper, development and evaluation of a small scale grid interactive DC microgrid (DCMG) for residential houses, telecommunication systems and data center has been proposed. The objective is being achieved by designing a comprehensive power flow control strategy and explored for different practical scenarios through real time simulation in RSCAD/RTDS platform. A Prototype is developed to validate the simulation results presented during grid connected and isolated mode.

