

Management System of Power for Microgrid Connected with Renewable Sources

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Abstract: *In India more than 70% of population is living in villages, which is a major stock holder for GDP and economic growth of a country. Government of India has introduced many programs for health, education, electricity etc. for improvement of the livelihood of villages and out of these programs rural electrification is a major challenge for Government. The electricity will play an important role in the human life for improving the socio-economic conditions in rural areas.*

According to census 2011 report in India only 55% of households are using electricity. The major challenges for rural electrification are accessibility due to poor paying capacities of house hold poor reliability of grid due to peak hours demand more than 20% loss in Transmission and distribution poor operation and maintenance of distribution System. In this research, to achieve high reliability of isolated hybrid micro grid in smart villages, the real time power management and power quality solution at source and load w.r.t demand generation and time is proposed. Power management system improves the stability of isolated micro grid by synchronizing the load and source as per the demand in smart villages. It helps to segregate the sensitive load and normal load in Village and provide high priority to sensitive loads. Further the real time optimization solution is proposed based on non-cooperative game theory for improvement of stability and reliability of isolated hybrid micro grid. There are three different algorithms are proposed for scheduling of generation and load demand with real time power management system. For improving the power quality, there are mainly the first approach is load side or source side based on load conditions; this approach is called load conditioning based on power management system. Finally the economic study considered to describe the financial viability of the isolated hybrid micro grid at minimum unit cost for village electrification with renewable energy sources

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