**Future Intelligent Electric Energy Systems**

S. Keerthana1 and Keerthi Jayaram2

Department of Electrical and Electronics Engineering

G. Narayanamma Institute of Technology, Shaikpet Hyderabad

E-mail:keerthanasandepudi@gmail.com

**Abstract**

The freely available natural Renewable energy sources such wind, solar etc. are popular for electric power generations for the past few decades. Due to their intermittent behavior and limited storage capabilities by connecting large number of small distributed generation units and their location within the power system has offered additional technical complexities and challenges to power system operation to maintain power quality and reliability. Due to electric power distribution market liberalization and changing regulatory framework and policies also lead to additional organizational complexity of power system. Therefore it is necessary to make it smart by design and operation of electrical power distribution with sophisticated information and communication architectures, automation concepts and control approaches to manage this complexity distribution system. . Since the power grid infrastructure is very critical and contains a large number of interconnected apparatus such as generators, power transformers and distribution transformers, busbars and feeders that are geographically spread. The side effects caused by the variable nature and high penetration of renewable energy systems make it very vulnerable, thus requiring sophisticated control mechanism for its stability and security. In this paper an attempt was made to provide an overview of the state of the art and recent developments enabling higher intelligence electric energy systems.