

Impact of Distributed Generations on Power Systems Stability: A Review

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Abstract:

Power system structure is becoming large and more complex to comprehend due to high demand for electrical energy caused by an increase population growth globally and the need for a balanced standard of living of citizenry. The inability of the Centralized Generations (CGs) which are mainly from fossil fuels to meet this growing need has necessitated the need for Distributed Generations (DGs) from renewable

energy sources to augment the existing system at the distribution level. Although, connecting these generators to an existing distribution system may create technical, economic, environmental and regulatory challenges which may impact either positively or negatively on the distribution system with the power system stability as one of the major issues to be addressed. This paper, therefore, presents a review on the impact of distributed generation on power system stability. The results from the study indicated that earlier research on this field have centered their findings on parameters such as power losses, voltage profile, reliability, protection and stability of power system when distributed generations are injected into the distribution network using different types of software with only few studies using artificial intelligence and supervisory control and data acquisition system during the course of their research thereby creating a gap that must be filled.

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