

## ADAPTIVE NETWORK PROTECTION IN MICROGRIDS

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### ABSTRACT

Microgrids comprise low voltage distribution systems with distributed energy resources (DER) and controllable loads which can operate connected to the medium voltage grid or islanded in a controlled coordinated way. This concept aims to move from “connect and forget” philosophy towards an integration of DER. Microgrids are expected to provide environmental and economic benefits for end-customers, utilities and society. However, their implementation poses great technical challenges, such as a protection of microgrid. Local generation in a combination with a possible islanded operation can pose protection sensitivity and selectivity problems in case of fault depending on the relay settings.

This paper presents a novel adaptive microgrid protection system using digital relaying and advanced communication. The protection system is based on a centralized architecture where relay protection settings are modified centrally with regard to a microgrid operating condition.