

Kompisit Prasart 2012: Impacts of Grid Connected Distributed Generation on Power Quality and Reliability for PEA Rural Areas. Master of Engineering (Electrical Engineering), Major Field: Electrical Engineering, Department of Electrical Engineering. Thesis Advisor: Assistant Professor Dulpichet Rerkpreedapong, Ph.D. 110 pages.

The objective of this thesis is to examine the impacts of distributed generation (DG) on voltage characteristic, line losses and reliability of PEA power distribution systems in rural areas in order to prepare for grid connected DG in the future.

This research models a PEA distribution system in rural areas to illustrate those effects. Such concerns frequently become obvious when the injected power from DG into the grid is higher than power demand of the feeder. It will result in overvoltage, an increase in losses and deteriorated reliability depending on DG's sizing and location connected to the PEA systems.

Accordingly, PEA should carefully consider DG sizing and system loading, or apply solution approaches developed in this thesis to the considered systems.

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Thesis Advisor's signature