

Churit Pansakul 2014: Impact of Increased Rooftop PV Installation Voltage  
Unbalance in LV Distribution Network. Master of Engineering (Electrical Engineering),  
Major Field: Electrical Engineering, Department of Electrical Engineering. Thesis  
Advisor: Mr. Komsan Hongesombut, Ph.D. 149 pages.

This thesis presents a method to determine the maximum installation capacity of the rooftop PV installed in low distribution system (400/230 V) of the Provincial Electricity Authority (PEA) that does not affect the standard percentage of voltage unbalance. In this study, the DIGSIENT program is used for constructing the simulated power system. The setting values of all parameters of the study system are referred to the standard of PEA. The installed capacity of the rooftop PV is increased step by step with the increasing size of 1 kW until reaching the maximum value that is specified by the PEA. The simulation results of increasing installed capacity of the rooftop PV can be observed on how the factor affects the percentage of voltage unbalance under seven study cases. Then, the results are compared with different installations of rooftop PV. Finally, the obtaining results are analyzed and summarized for each study case with the suggestion and solution to solve the problem.

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Thesis Advisor's signature