

A Study on Solutions to Connect Distribution Power Grid up to Renewable Energy Sources at KEPCO

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Abstract : In 2015, the southern part of the Korean Peninsula has 8.6 million poles, 1.25 million km power lines, and 2 million transformers, etc. It is the massive amount of distribution equipments which could cover a round-trip distance from the earth to the moon and 11 turns around the earth. These distribution equipments are spread out like capillaries and supplying power to every corner of the Korean Peninsula. In order to manage these huge power facility efficiently, KEPCO use DAS (Distribution Automation System) to operate distribution power system since 1997. DAS is integrated system that enables to remotely supervise and control breakers and switches on distribution network. Using DAS, we can reduce outage time and power loss. KEPCO has about 160,000 switches, 50%(about 80,000) of switches are automated, and 41 distribution center monitoring&control these switches 24-hour 365 days to get the best efficiency of distribution networks. However, the rapid increasing renewable energy sources become the problem in the efficient operation of distributed power system. (currently 2,400 MW, 75,000 generators operate in distribution power system). In this paper, it suggests the way to interconnect between renewable energy source and distribution power system.

Keywords : distribution, renewable, connect, DAS (Distribution Automation System)

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