

A NOVEL MODEL TO DETERMINE OPTIMIZING POWER AND CAPACITY FOR ENERGY STORAGE SYSTEMS ON COMPETITIVE ELECTRICITY MARKETS

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TÓM TẮT:

Distributed generators (DGs) and renewable energy resources (Hydroelectric, photovoltaic, solar thermal technologies, and wind farms...) have been applied widely on planning and operating of distribution systems due to the restructure of electricity market and the development of technology. The energy storage systems (ESSs) can store energy and then retrieve it in the other time, increase flexibility of distribution systems. Hence, many researches and applications have been conducted. Effects of ESSs on planning and operating the wind generators therefore should be carefully investigated. This paper proposes a novel approach to calculate maximum profits of the wind generators and determine optimizing power and capacity of ESSs. This model uses an objective function that includes the total profits for electric energy sales, total costs (investment, operation and maintenance) of ESSs, transmission access fee, and upgrading cost of connected substation transformers. The proposed model is applied to test two 1500kW wind generators. The calculation is programmed by GAMS environment