A NOVEL MODEL IMPROVED THE EFFICIENCY OF DISTRIBUTION GENERATORS IN THE COMPETITIVE ELECTRICITY MARKETS BY ENERGY STORAGE SYSTEMS

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TÓM TẮT:

Recently, the competitive electricity markets and the development of technology have been enhancing the wide application of distributed generators (DGs) and renewable energy resources on planning and operating of distribution systems. 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 DGs therefore should be carefully investigated. This paper proposes a novel approach to calculate maximum profits of the DGs 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, O&M) of ESSs, transmission access fee, and upgrading cost of connected substation transformers. The proposed model is applied to test two 1500kW wind powers. The calculation is programmed by GAMS environment