

Stochastic Energy and Reserve Scheduling with Wind Generation and Generic Energy Storage Systems

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Abstract : Energy storage units can play an important role to provide an economic and secure operation of future energy systems. In this paper, a stochastic energy and reserve market clearing scheme is presented considering storage energy units. The approach is proposed to deal with stochastic and non-dispatchable renewable sources with a high level of penetration in the energy system. A two stage stochastic programming scheme is formulated where in the first stage the energy market is cleared according to the forecasted amount of wind generation and demands and in the second stage the real time market is solved according to the assumed scenarios.

Keywords : energy and reserve market, energy storage device, stochastic programming, wind generation

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