نویسندگان:

Ali Shayegan Rad - *Faculty of Electrical and computer engineering Shahid Rajaee Teacher Training University Tehran, Iran*

Ali Badri - *Faculty of Electrical and computer engineering Shahid Rajaee Teacher Training University Tehran, Iran*

Ali Zanganeh - *Faculty of Electrical and computer engineering Shahid Rajaee Teacher Training University Tehran, Iran*

خلاصه مقاله:

In this paper a scheduling model is implemented to determine optimal simultaneous energy and spinning reserve (SR) procurement. Also optimal bidding strategy, considering wind power plants (WPPs) and storage facilities penetration in distribution network has been represented. The virtual power plant (VPP) has used mix of available resources to maximize its expected profit by participating in both energy/SR day-ahead markets. The pumped storage plant (PSP) and gridable vehicle units (GVUs) are modeled as storage facilities in the VPP. Moreover, consumers can participate in both energy and SR markets using VPP demand response (DR) programs. This paper models uncertainty in available electric power of WPPs, energy and reserve day-ahead market prices and the manner of GVU owners using point estimated method (PEM). The stochastic generation of WPP is covered through allocating desirable SR. the proposed method is applied to an 18 busses distribution test system over 24-h period.

کلمات کلیدی:

virtual power plant; spinning reserve; gridable vehicle units ; point estimate method