

عنوان مقاله:

نتایج شبیه سازی، جابجایی همزمان بهینه ریکلوزر و تولید پراکنده، با بهره از الگوریتم مورچگان

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خلاصه مقاله:

Distributed generation (DG) is being incorporated into the current distribution networks, one of the objectives being enhancement of power system reliability. In a DG-enhanced feeder, power flow is not unidirectional, and conventional protection logic needs to be modified accordingly. A faulted branch can be energized from both ends and the protection devices are desired to interrupt the fault current. There are primarily three scenarios in the optimal design of a DG-enhanced distribution system: 1) optimal recloser placement for a given DG allocation; 2) optimal DG placement for a given recloser placement; 3) optimal recloser and DG placement. In essence, such problems are highly combinatorial and the corresponding objective functions are usually nondifferentiable. Thus, traditional analytical approaches such as linear and nonlinear programming have difficulty in dealing with these problems. More recently, various computational intelligence techniques have been developed to find the optimum or near-optimum solutions based on guided stochastic search. Among them, swarm intelligence is a relatively novel technique that can be used for complex engineering design optimization. Especially, ant colony search-based algorithms are a kind of outstanding discrete optimizers. In this study, an ant colony system (ACS) algorithm is proposed to optimize the recloser (or DG) placement for a fixed DG (or recloser) allocation. The idea can be extended to the simultaneous placement of both reclosers and DGs

کلمات کلیدی:

مکانیابی بهینه، ریکلوزر، تولید پراکنده، شبکه های توزیع برق، الگوریتم مورچگان، قابلیت اطمینان، کاهش تلفات، DG

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