

Article Abstract

Title:	A novel progressively swarmed mixed integer genetic algorithm for security constrained optimal power flow (SCOPF)
Author(s):	Mithun M. Bhaskar ^{1*} , Srinivas Muthyala ² and Maheswarapu Sydulu ³
Address(es):	^{1, 3*} Department of Electrical Engineering, National Institute of Technology, Warangal, INDIA ^{2*} Infosys Technologies Limited, Mysore, INDIA *Corresponding Author e-mail: mithun.bm@ieee.org, Tel +91-903-2595259
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Abstract:	This paper proposes a superior Mixed Integer based hybrid Genetic Algorithm (MIGA) which inherits the advantages of binary and real coded Genetic Algorithm approach. The proposed algorithm is applied for the conventional generation cost minimization Optimal Power Flow (OPF) problem and for the Security Constrained Optimal Power Flow problem. Here, the main shortcoming with the conventional Genetic Algorithm, the ‘Hamming Cliff’ problem is addressed with Mixed Genetic Algorithm, which can overcome issues connected to the continuous search space. The proposed algorithm models the continuous variables using real values and discrete variables using binary values. A novel concept of Progressive filling is also presented here for Mixed Integer GA, which heightens the algorithm. The proposed procedure is compared with many conventional algorithms and validated on a test-bed of standard IEEE 30 bus system with and without valve-point loading effect.
Keywords:	Genetic Algorithm, Optimization Techniques, Optimal Power Flow, Power System Security.