

## **Constrained Reactive Power Control (CRPC) Based Multi-Objective Optimization under Multi-Contingencies ( $N-m$ )**

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### **ABSTRACT**

Optimal Reactive Power Dispatch (ORPD) is needed for reduces the power system losses and improves voltage profile, power system security and overall power system operation. In this paper, the ORPD problem solved using Constrained Reactive Power Control (CRPC) based Multi-Objective Evolutionary Programming (MOEP) optimization technique considering multi-contingencies ( $N-m$ ). The proposed technique determines the optimum reactive power to be dispatched by the generators in order to improve voltage stability condition of a system. A computer program was written in MATLAB and the proposed technique was tested on the IEEE 30-bus RTS. Hence, the result was compared with Multi-Objective Artificial Immune System (MOAIS) to highlight it merits.

**KEYWORDS:** BCS, MOEP, Multi-Contingencies ( $N-m$ ), Power Loss Minimization, SVSI, Voltage Stability

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