

Contingency Analysis: A Feasibility Identification and Calculation Algorithm

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Abstract-

This paper presents a continuation and optimization based algorithm to detect power flow unfeasibility under the occurrence of contingency hypothesis. In addition, the algorithm obtains the power flow solution under contingency hypothesis, if it exists, no matter how ill-conditioned the power system is. The proposed algorithm is based on the parameterization of both branches outage and generation dispatch of the generators selected for contingency evaluation, defining a contingency convergence margin. The performance of the algorithm is illustrated considering an highly loaded scenario of the operation of the Spanish power system.

Index Terms-

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