

عنوان مقاله:

Mitigation of Mutual Coupling Effects on Distance Relay in a 63 kV Double-Circuit Transmission Line: A Case Study at Ilam Gas Treating Plant

محل انتشار:

دومین همایش بین المللی مهندسی نفت، صنایع گاز زمین شناسی و پتروشیمی (سال: 1402)

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خلاصه مقاله:

the modern power systems face various challenges, including increased demand, evolving structural changes, limited investment in new transmission lines, and the presence of competitive electricity markets operating near physical limits or equipment stability thresholds. Consequently, the safe and reliable operation of transmission network protection systems becomes crucial, particularly during critical operating modes. This importance is magnified in large industrial plants with significant load and generation, interconnected with the national network. This research focuses on the transmission network of Ilam gas Treating plant, exploring the distance protection challenges arising from mutual coupling effects in its 63 kV double-circuit transmission line. Through simulations utilizing EMT-P-RV and MATLAB software, the efficiency of the existing protection system is evaluated, and viable solutions to enhance its performance are proposed. The solutions are validated through laboratory tests, yielding highly satisfactory results and paving the way for operational implementation

کلمات کلیدی:

transmission lines, distance protection, mutual coupling, under-reach, over-reach

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<https://civilica.com/doc/1899328>

