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Static Priority Approach to Under-Frequency Based Load Shedding Scheme in Islanded Industrial Networks: Using the Case Study of Fatima Fertilizer Company Ltd - FFL

Authors : S. H. Kazmi, T. Ahmed, K. Javed, A. Ghani

Abstract : In this paper static scheme of under-frequency based load shedding is considered for chemical and petrochemical industries with islanded distribution networks relying heavily on the primary commodity to ensure minimum production loss, plant downtime or critical equipment shutdown. A simplistic methodology is proposed for in-house implementation of this scheme using underfrequency relays and a step by step guide is provided including the techniques to calculate maximum percentage overloads, frequency decay rates, time based frequency response and frequency based time response of the system. Case study of FFL electrical system is utilized, presenting the actual system parameters and employed load shedding settings following the similar series of steps. The arbitrary settings are then verified for worst overload conditions (loss of a generation source in this case) and comprehensive system response is then investigated.

Keywords : islanding, under-frequency load shedding, frequency rate of change, static UFLS
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