

**Title of Article :** Power Flow Analysis of Abule-Egba 33-kV Distribution Grid System with real network Simulations.

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**Abstract :** In order to ascertain that an electric power is economically transferred over the grid system with maximum efficiency and reliability at virtually fixed voltage and frequency to consumers, it becomes imperative to carry out power flow studies. This study presents a model of an electrical distribution grid on a computer system for simulation. Hence the research work models and simulates a distribution grid using the “ETAPS” software. By making a model of the distribution network, the value of real and reactive powers and voltage magnitudes in the whole network can be observed. The simulation results obtained from the existing condition of 33-kV Ota transmission network and the 11/0.415-kV Yusuf and Abule-Iroko injection substations indicate that 15 feeder pillars have low voltage violations. To solve the problem of voltage violations, shunt capacitor compensators were placed at affected locations, resulting in a network with improved voltageprofile.

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**Keywords:** ETAP software, power flow, shunt capacitor, simulation, voltage magnitude