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Losses Assessments for Power Quality Improvement of Power System using Neuro-Fuzzy

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Abstract— This paper presents a simultaneous formulation for the optimal real and reactive power control problem using the Neuro-Fuzzy and presents the comparison with Newton Raphson which shows the optimality of method. The objective is to find the power losses of the given system. The bus voltage, system frequency and the reactive power mainly govern the limits for safe operation of power system. Generally we have power losses in the lines and in associated equipments. Any change in loads/generation in a power system changes the voltage level at different buses causing corresponding changes in the power losses in the lines. Neuro-Fuzzy models were developed to solve the losses assessment under steady state condition of the power system. From the study it is concluded that Neuro-Fuzzy can be applied as an effective tool for assessment of losses for improving power quality problems in power system.

Keywords— Electric Power System, generation, losses, ANN, Fuzzy, Power-Quality