

# **Modeling and analysis: power injection model approach for high performance of electrical distribution networks**

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## **Abstract:**

*The generation of electrical energy varies depending on the needs of the user, initial requirements, capacity, intended use, waste generation, and economic efficiency. In order to meet the challenges of the proposed overvoltage of the presented system, it is possible to use the solar collectors and profit from them economically through smart grid smart control systems. The mathematical model with four main parts was created: simulation, correlation, and evaluation according to the solar program set of photovoltaic solar modules, maximum power point tracking (MPPT), an adaptive neuro-fuzzy inference system (ANFIS) controller, and 600-volt electric network. Then in this phase, the investigation of the effects on the network on the basis of the output power with the coincidence of radiation and the effect of temperature in the network is carried out. An analysis was carried out to evaluate the impact of these fundamental limitations in practical application. In this section, the simulation of the proposed system is discussed. The block diagram of the developed system is presented in the last part. The proposed system was assessed from the Matlab simulation tapes and graphs for each part of the system, and the results of the overall system simulation were taken into account.*