

Decision trees applied to forecasting switched shunt devices within the Spanish power system

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Abstract— Static security assessment within a power system requires:(a) building a scenario of the power system network that represents the state of the network for a particular time spot and (b) running a number of static security assessment tools that could be very time consuming. Short term forecasting of power system scenarios is required to foresee potential network problems and anticipate preventive or corrective measures to be taken under credible contingencies, thus increasing the reliability of the operation of the grid. The aim of this paper is to predict the values of switched shunt devices, i.e., reactors and capacitors in a short-term time scope (24 -36 hours ahead) in order to build a power system scenario. A methodology based on decision trees is proposed and its performance is validated by forecasting the reactive output of the shunt components of the Spanish power system.

Index Terms— Power system operation, security assessment, artificial intelligence, decision trees

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