PMU Measurement Based Robust Neural Network Training to Identify Islanding Condition

In recent years, power system has been operated near its margins. Under these conditions low frequency oscillations can make some islands correspond to coherent groups. Many algorithms have been utilized to identify islanding condition but neural network (NN) because of having pattern recognition property has made more faster and reliable results than others. One of the most important issues in NN is selecting input data to generate robust solution. Recently, phasor measurement units (PMU) have opened new area in power system analysis by measuring more accurate and synchronize parameter of power grid. These accurate data can be utilized as input to generate robust NN by intelligent selecting sets of measured data. Many Researches have been utilized rotor angle or transmitted power to detect islanding condition. There are two important issues in selecting these parameters: (1) is PMU able to measure this arameter? and (2) is selected parameter the best measured data to identify islanding condition? In this paper a NN have been trained using all electrical parameters that can measure by PMU and results are compared to select the best measured parameter. IEEE 39-bus is used in DigSilent software to generate required data. Also neural network are simulated in MATLAB.