IDENTIFICATION AND MONITORING OF LOAD POWER QUALITY CHARACTERISTICS USING DATA MINING

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ABSTRACT

The paper presents data mining application in power quality data analysis. Data mining tools are suitable for assisting in such analysis of large scale power quality monitoring data. It is to extract information that may otherwise remain hidden within the recorded data. Such information may be critical for identification and diagnoses of power quality disturbance problems, prediction of system abnormalities or failure and alarming of critical system situations.

It also shows on how clustering can be used to identify interesting patterns of harmonic measurement data and how these relate to their associated operational issues. The measured data is classified using data mining based on clustering techniques which can provide the engineers with a visually oriented method of evaluating the operational information contained within the cluster.

Such information may be critical for identification and diagnoses of power quality disturbance problems, prediction of system abnormalities and alarming of critical system situations. The monitoring program involved measurements of the harmonic currents and voltages from a substation.

From the result obtained, the capacitive load event that occur shows that by applying the clusterdata it can provide method of evaluating the operational information contained within the cluster. However, the result shows that harmonic not give much affect to the system since the energy level of harmonic that feedback to the substation is small. Only 11th harmonic of every cluster give effect to the system. The harmonics can easily be eliminated by capacitor banks since it far from fundamental voltage and current.

Keyword: data mining, clustering techniques, power quality, harmonics.

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