

Power Consumption State Evaluation of Important Power Customers Based on AHP-TOPSIS Algorithm

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Abstract

In order to ensure the power safety of important power customers, a new evaluation of power consumption status of important power customers based on the AHP(Analytic Hierarchy Process)-TOPSIS(Technique for Order Preference by Similarity to an Ideal Solution) algorithm is proposed by fully mining and applying the power big data. Firstly, a power consumption big data analysis platform based on the Hadoop architecture is built to provide a high-performance platform support for big data analysis. Secondly, nine evaluation indexes are constructed from the three dimensions of voltage, load and synthesis, which objectively and scientifically describes the power consumption status of important power customers. Finally, the AHP-TOPSIS algorithm is used to evaluate and analyze the voltage, load and comprehensive indicators respectively, thus, obtaining the evaluation values of three kinds of indicators. The power consumption status scores of important power customers are determined by the variable weight weighted summation. The rationality and feasibility of the method and algorithm are proved by example analysis and field verification. This method helps to promote the transformation from post fault emergency repair to warning beforehand. It has the multiple effects of ensuring safe power consumption, supporting accurate patrolling and active emergency repair serving.

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