

发电

基于证据推理的汽轮机组状态评价方法

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摘要

针对大型汽轮机组状态信息复杂, 运行状态难以准确评价的问题, 提出基于证据推理的状态评价方法。该方法充分考虑评价证据的不精确性和不完全性, 在构建汽轮机组状态评价多属性决策树的基础上, 提出定量和定性证据相结合的方法, 并分别给出定性和定量2种状态决策知识的获取和转化方法。建立基于决策树的状态评价模型, 给出证据推理算法, 并将该方法应用于某300MW汽轮机组的状态评价。结果表明, 该方法可行有效, 很好地解决了部分证据不精确和不完全的状态评价问题, 评价结果为维修决策提供依据。

关键词 [汽轮机组](#) [证据推理](#) [决策树](#) [状态评价](#)

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Condition Evaluation on Steam Turbine Units Based on Evidential Reasoning

Abstract

Aiming at the problem that the condition information of large size steam turbine unit is complex and difficult to evaluate its condition accurately, an evaluation method based on evidential reasoning is proposed. The uncertainty and incompleteness of evaluation evidences are fully considered, qualitative and quantitative evidences are integrated and the acquisition and transformation methods are put forward based on constructing multiple-attribute decision-making tree for condition evaluation. Then a decision tree based condition evaluation model is established and the corresponding evidential reasoning algorithm is provided. The method is then used to evaluate the condition of 300MW steam turbine unit. It is proved that this method is feasible and effective, and can deal with the condition evaluation problem with uncertainty and incompleteness. The evaluation results can be used as a support for maintenance decisions.

Key words [steam turbine unit](#) [evidential reasoning](#) [decision tree](#) [condition evaluation](#)

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