

ABSTRACT

A METHOD FOR DETECTING A REAL-TIME DEVIATION OF ENERGY EFFICIENCY IN A HVAC PLANT

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The application provides a method for generating a model for determining a baseline efficiency of an HVAC unit. The method comprises receiving multiple operational parameters comprising electrical powers of multiple chillers, a temperature of chilled water supplied from the chillers (CHWS_T), a temperature of chilled water returned to the chillers (CHWR_T), and a flow rate of the chilled water (CHW_F); computing efficiency as a ratio of total electrical power of the chillers to a cooling load that refers to a product of a constant value, a difference between CHWS_T and CHWR_T, and CHW_F; selecting parameters having high correlation coefficients, wherein the selected parameters consist of electrical powers of the chillers, CHWS_T, CHWR_T, and CHW_F; and training a model based on the selected parameters and a corresponding efficiency such that the trained model is adapted to provide a baseline efficiency according to the measurements of the selected parameters.

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(Fig. 5)