عنوان مقاله:

THEOPTIMAL ENERGY CARRIERS' SUBSTITUTES IN THERMAL POWER PLANTS: A FUZZY LINEAR PROGRAMMING MODEL

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خلاصه مقاله:

In this paper, a dynamic optimization approach for optimal choice of energy carriers in thermal power plants is proposed that analyzes the substitution of energy carriers in short-term planning of a power plant. The model is based on linear programming method with objective of minimizing costs under constraints of resource availability, energy balances, environmental regulations and electricity production requirements. The restriction of resource availability in cold months due to depletion of gas pressure is considered. This research (as case studies) demonstrates the application of the model for determination of efficient substitutes and optimization of their consumption in two thermal power plants in Iran. In these case studies, the reasonable solutions for dynamic planning of substitution of energy carriers in two power plants have been obtained. Effect of uncertainties of fuel price on the model was examined. Thus, a fuzzy linear programming model with fuzzy objective coefficients was formulated and two fuzzy methods were used: Zimmerman max-min and TH methods. The model solved for one of the power plants and its results were compared to obtained results of the crisp model. Finally results of both fuzzy methods were compared to each other

کلمات کلیدی:

Energy conservation; Alternative fuel; Fuzzy linear programming; Optimization; Thermal power plant