عنوان مقاله:

Analysis of inlet evaporative cooling for gas turbine power plant in Shiraz, Iran

محل انتشار:

بیست و نهمین همایش سالانه بین المللی انجمن مهندسان مکانیک ایران و هشتمین همایش صنعت نیروگاه های حرارتی (سال: 1400)

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خلاصه مقاله:

In this paper, the effects of inlet evaporative cooling system on the energy efficiency and power augmentation are investigated for GE gas turbine whichis installed in Fars combined cycle power plant near Shiraz in Iran. Since the gas turbine performance is very sensitive to ambient conditions, the effectiveness of evaporative cooler is analyzed and compared with the measured values at different temperatures. In Fars power plant, the inlet evaporative coolers operate a maximum of ten hours a day, from June to August. The gas turbine is modeled and the mathematical results obtained from the model are validated by manufacturer data and performance results from Fars power plant. Due to the climate and type of power plant, a new operating time is proposed and the energy, efficiency and economic analyses have been evaluated for different operations from inlet evaporative cooling. The resultsshow that proposed method predicts the efficiency improvement and power generation increases more than ۸% what it is now.

کلمات کلیدی:

Energy, Efficiency, Economic analysis, Power augmentation, Evaporative cooling