

스팀발전소에서 absorption chiller와 wet cooling tower의 cold utility 기능의 Von Neuman's analysis기반 지속가능 지표 연구

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The sustainability of a novel steam power plant combined with an absorption chiller and a wet cooling tower as the cold utility is investigated through Von Neuman's analysis. The whole plant is assumed to be an individual unit and the environmental and economic costs are commercialized to form the arrays of Von Neuman's matrix. Each array consists of the summation of the costs caused by the environmental pollution and the savings by ecologic advantages of the system in US\$. Standardized costs are used for the conformity of the square matrix after the analysis assumptions are fully satisfied. The sustainability factor of the system is then obtained while the eigenvalue of the matrix is smaller than the unity. The novel application of the Von Neuman's analysis results showed that the proposed configuration is sustainable where the combined environment-economical values of the water is 3.446 \$/lit.

Keywords: economy; environment; power plant; sustainability; Van Neuman

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