ABSTRACT

Modelling and Optimization of Industrial Energy Systems

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The need and potential for energy conservation in the industrial sector is briefly reviewed. Two accounting frameworks for analyzing energy use, Energy Analysis and Exergy Analysis are discussed and the need to use both the First and Second Laws of Thermodynamics in energy optimization studies is highlighted.Several approaches to energy system optimization reported in the literature are presented and discussed. A Multiple Objective Linear Programming Model for the optimization of industrial energy systems incorporating exergy and economic criteria is formulated and its application is illustrated by means of an example problem.