Monte Carlo Simulation for Process Heat Cogeneration System

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ABSTRACT

Cogeneration system could be defined as a system that supplies electricity power and heat energy simultaneously from a single source of fuel. This system is an effective one for industrial and domestic applications where both types of energy are demanded. One of the key issues in this thermal system is to maintain an effective generation of net work and its efficiency during its operation. One of the attempts to address this issue is to develop a thermodynamic model of wet compression and steam injection in combustor of the cogeneration system. Therefore it is necessary to analyze the model and observe through multiple numerical experiments how performance is improving by injecting suitable quantity of water into the compressor and steam into the combustion chamber. Thermodynamic model of wet compression and steam injection in a process heat cogeneration system is established in this paper. The objective of this paper is to find out the critical input parameters and to find out the effect of input parameters on output with the help of Monte Carlo Simulation.

Keywords

Process Heat Cogeneration System, Monte Carlo Simulation