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THERMAL SCIENCE

International Scientific Journal

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THERMODYNAMIC ANALYSIS OF HEAT RECOVERY STEAM GENERATOR IN COMBINED CYCLE POWER PLANT

ABSTRACT

Combined cycle power plants play an important role in the present energy sector. The main challenge in designing a combined cycle power plant is proper utilization of gas turbine exhaust heat in the steam cycle in order to achieve optimum steam turbine output. Most of the combined cycle developers focused on the gas turbine output and neglected the role of the heat recovery steam generator which strongly affects the overall performance of the combined cycle power plant. The present paper is aimed at optimal utilization of the flue gas recovery heat with different heat recovery steam generator configurations of single pressure and dual pressure. The combined cycle efficiency with different heat recovery steam generator configurations have been analysed parametrically by using first law and second law of thermodynamics. It is observed that in the dual cycle high pressure steam turbine pressure must be high and low pressure steam turbine pressure must be low for better heat recovery from heat recovery steam generator.

KEYWORDS

[combined cycle](#), [gas turbine](#), [steam cycle](#), [dual cycle](#), [waste heat recovery](#)

PAPER SUBMITTED: 2006-09-10

PAPER REVISED: 2007-10-19

PAPER ACCEPTED: 2007-11-12

DOI REFERENCE: [TSCI0704143R](#)

CITATION EXPORT: [view in browser](#) or [download as text file](#)

THERMAL SCIENCE YEAR 2007, VOLUME **11**, ISSUE **4**, PAGES [143 - 156]

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