

**DESIGN AND ANALYSIS OF HEAT REGENERATION
TECHNIQUE IN A COMBINED CYCLE POWER PLANT**

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, not material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

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In recent years, energy efficiency becomes one of the most frequently discussed topics in international forums and community, from which the notion of optimizing energy resources is introduced. Heat regeneration represents a mechanism to reuse the heat energy which is wasted during the energy conversion process, such practice is also known as combined cycle technique. This thesis presents the analysis of a conversion from open cycle gas turbine power plant into a combined cycle power plant based on mathematical modeling and simulation. The scope is limited to the analysis of heat regeneration process in Heat Recovery Steam Generator (HRSG), during which the running process converts feed water into steam before it is fed into a steam turbine to generate electricity. The main concerns to be examined involve the mechanical analysis of heat transfer media, controller design of heat exchanger and power delivery method.

Keyword: heat exchanger, combined cycle, mathematical modeling, simulation, HRSG

DEDICATION

... To my father and mother.



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