



بسم الله الرحمن الرحيم

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مسئولية عن محتوى هذه الرسالة.

ملاحظات: لا يوجد





**GAS TURBINES WASTE HEAT RECOVERY
OPPORTUNITIES
CASE STUDIES AMERYA LPG PLANT & WESTERN
DESERT GAS COMPLEX**

By

Magdy Ahmed Mohamed

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
in
Chemical Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of Thesis:

Gas Turbines Waste Heat Recovery Opportunities
Case Study Western Desert Gas Complex & Amerya LPG Plant

Key Words:

Waste Heat Recovery; Natural Gas ; Gas turbines; Organic Rankine Cycle ; Absorption Refrigeration

Summary:

This work presents waste heat utilization strategies to improve the energy efficiency of the process in natural gas processing plants. The energy recovery strategies considered utilizing gas turbines waste heat by three different methods: Process Heat Integration, Organic Rankine Cycle and Absorption Refrigeration Cycle. A general methodology proposed to provide the best technical and economic method using simulation models created by Aspen HYSYS process simulator and applied on two important natural gas processing plants in Egypt; Amerya LPG plant and Western Desert Gas Complex.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

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Dedication

This work is dedicated to my wife, whose encouragement has made sure that I give it all it takes to finish that which I have started. I am truly thankful for having you in my life.

This work is also dedicated to my family, who have always loved me unconditionally and whose good examples have taught me to work hard for the things that I aspire to achieve.

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