بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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MONA MAGHRABY

NEW ANALYTICAL TECHNIQUES FOR BOTH DG HOSTING AND SIMULTANEOUS WITH DISTRIBUTION SYSTEM RECONFIGURATION TO REDUCE ELECTRIC POWER LOSS

By

Mohamed Ahmed Sayed Ahmed Abdelkader

A Thesis Submitted to the

Faculty of Engineering at Cairo University

in Partial Fulfillment of the

Requirements for the Degree of

DOCTOR OF PHILOSOPHY

in

Electrical Power and Machines Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY

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Under the Supervision of

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Title of Thesis:

New Analytical Techniques for Both DG Hosting and Simultaneous with Distribution System Reconfiguration to Reduce Electric Power Loss

Key Words:

Power flow; power loss reduction; distribution system; distributed generation; reconfiguration

Summary:

First, this thesis presents a new forward algorithm for balanced three-phase load-flow analysis of active and passive radial distribution networks (RDNs). Second, a successive analytical formula (AF) for system loss reduction to allocate multiple Distributed Generation (DG) units is deduced considering the mutual influence of all DG units. The effects of some operation changes are analytically included. Third, a Pivot for Simultaneous Reconfiguration and DG Hosting (PSRH) is introduced to analytically reduce the system loss based on a proposed Pivot Curve Analytical Tool (PCAT), which utilizes a single power flow run.

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.

Name: Date:

Signature:

Acknowledgement

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