شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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HANAA ALY

A STUDY ON THE INTERACTION BETWEEN OLTCs AND PV INVERTERS IN LV DISRIBUTION NETWORKS.

By

Eng.Roqaia Mohamed Lotfy Mohamed.

A Thesis Submitted to the

Faculty of Engineering at Cairo University

in Partial Fulfillment of the

Requirements of the Degree of

MASTER OF SCIENCE

in

Electrical Power and Machines Engineering

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Title of Thesis: **A STUDY ON THE INTERACTION BETWEEN OLTCs AND PV INVERTERS IN LV DISRIBUTION NETWORKS.**

Keywords: PV system, on load tap changer, smart PV inverter, voltage regulation.

Summary: With great increasing concern about fossil fuel shortage the incentive motivating to improve alternative energy sources. Between renewable energy sources used, energy through photovoltaic is common. Lately, pv system could be widely used as a viable replacement to traditional sources. Unfortunately, PV systems create several challenges to the operation and voltage control to the utilities, So Voltage regulation is needed. Voltage regulation control methods have been proposed in this thesis considering the inverter of the pv system and OLTC in IEEE15_bus system to regulate the voltage during the studied period by using MATLAB/Simulink. An14_hour simulation is performed considering PV and load variation. The simulation results show that the use of smart PV inverter with OLTC not the best way to regulate the voltage and there is a need to make coordination between them as a voltage regulator devices.

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: / / 2021

Signature:

Dedication

TO
My parents, my husband, my baby, my sisters.

Acknowledgments

Most of all thanks to the God who gives me the strength while doing this work.

I would like to express my sincere gratitude and thanks to my supervisor **Associated** Prof. Dr. Mahmoud El-Sayed for his invaluable supervision, continued advice, encouragement,and helpful suggestions.

I owe my deepest gratitude to my supervisor, Dr. Mohamed Yousry who has been instrumental in the form of advice and support from the very beginning of this dissertation until its very end. It was his words that helped me understand the subject to great lengths. I truly appreciate all his contributions of time, brilliant ideas, his expert supervision, and extensive knowledge of this subject.

I would like to express my genuine gratitude to my family, especially my parents, my husband, and my sisters. I pray to God to bless them and reward them, as no words can show my gratitude to them. A final word to my husband and my father; without you I could have never been able to achieve this work. Your patience and encouragement were always a source of strength for me. You with my baby “Mohamed” are the shining moon that lightens my life.

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