ATTENUATION OF TRANSFORMER INRUSH CURRENT USING CONTROLLED SWITCHING SYSTEM ON DELTA-STAR TRANSFORMER

By

Eng. Mohamed Hassan Hashem Ibrahim

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
Electrical Power and Machines Engineering

Faculty of Engineering, Cairo University
Giza, Egypt
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Title of Thesis:

Attenuation of Transformer Inrush Current using Controlled Switching System on Delta-Star Transformer

Key Words:
Inrush Current Mitigation; Residual Flux; Controlled Switching System; Transformer Models; Harmonics

Summary:

Reduction and methods of control of switching transients have become important concerns to the power industry. Power transformers are vital components in electric power system. This thesis presents a technique for attenuation of transformer inrush current. The proposed technique is applied to 66/11.5 kV, 25 MVA power transformer with delta connected winding using ATP-EMTP software. The main idea of the proposed technique is using controlled transformer energization preceded by controlled de-energization to achieve a defined and repeatable residual flux with its lowest possible level for individual phases, and then determine the optimal instant of energization considering the core residual flux.

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:

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Acknowledgments

All praises and thanks to Allah for guiding me to complete this thesis by providing me with very valuable persons to support me during my work.

There is no word that can express my deepest appreciation and sincere to Prof. Ahdab Elmorshedy for her helpful advice, important support, encouragement, and the time she offered me during supervision. I am grateful for having opportunity to study and to work under her supervision.

My deep gratitude and thanks are dedicated to the Dr. Ahmed Emam, for his continuous guidance, valuable and fruitful suggestions, and help in achieving this work. No words can describe his great and important support and care.

Finally, my thanks to my family for their encouragement, support, and patience all the time in order to complete my thesis on its best form.

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