TRANSIENT STABILITY ANALYSIS OF THE IRAQI NATIONAL SUPER GRID SYSTEM (INSGS)

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Thesis is submitted to Faculty of Electrical Engineering, MARA University of Technology (UiTM) in fulfillment of the requirement for the Bachelor of Electrical Engineering (Hons.)

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NOVEMBER 2009

ACKNOWLEDGEMENT

It is a pleasure to thank the many people who made this thesis possible.

I am deeply indebted to my Supervisor, Mr. Norazlan Bin Hashim, whose help, stimulating suggestions and encouragements helped me in all the time of research for and writing of this thesis. Throughout my final year project period, he had provided sound advice, good teaching and lots of good ideas – making C++ an exciting program to learn and making this project an enjoyable journey.

I would like to show my gratitude to my many student colleagues for all the emotional support, camaraderie, entertainment and caring. Their knowledge on C++ also helped a lot in making this thesis possible. I am grateful for their kind assistance by giving wise advice and helping me with various application of this final year project.

My family – thank you for your patience, support and understanding throughout the making of this thesis. Your moral support had lessened the burden of writing this thesis.

Thank you so much to all those who supported me in any aspect during the completion of this project, I offer you my regards and blessings.

Lastly, and most importantly, my gratitude goes to the God Most High, for giving me the opportunity to live, to learn and to grow through the completion of this project.

Thank you.

ABSTRACT

The growth in population has become an increase source for a larger power system. Many power systems are newly built and existing power systems are expanded to meet the growing demand of electricity. Due to the continuous expansion of the power system and the growth in electricity demand, new and larger problems are expected to be encountered. Therefore, methods to solve these new encountered problems as well as the existing problems more efficiently and quickly are needed to ensure continuous supply of electricity to consumers.

In this thesis, the transient stability analysis of the Iraqi National Super Grid System (INSGS) is examined. Transient stability analysis is done through Dynamic Computation for Power System (DCPS). DCPS is a C++ program developed by Dr. Sallehhudin Bin Yusof. Three phase fault is applied on the transmission line to study the fault clearing time taken by the system.

This thesis is also done to determine the most critical line and the most critical bus in the system. This is done through Voltage Collapse Proximity Indicator (VCPI). VCPI is proposed by Moghevemmi based on power transfer through a line. Results taken from VCPI will then be tested by applying three phase fault for transient stability analysis in DCPS. Through VCPI, reactive power of the weakest bus is gradually increased to analyze the stressed condition the bus can withstand.

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