UNIVERSITI TEKNOLOGI MARA

ANALYSIS OF MAXIMUM POWER POINT TRACKING (MPPT) FOR PHOTOVOLTAIC (PV) POWER IN DISTRIBUTED GENERATION (DG) IN MICRO-GRID SYSTEM

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Thesis submitted in fulfillment
of the requirements for the degree of
Master of Science
(Electrical Engineering)

Faculty of Electrical Engineering

April 2021

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Postgraduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The research is related to the renewable energy which is solar. Nowadays, the global use of renewable energy is higher as compared to few years back. The increased usage of renewable energy has led to this research. Solar energy is chosen, and this renewable energy relates to the main grid with rating of 25 kV. Solar power is chosen because of the demand in the market nowadays. The solar farm is producing 2.5 MW by using SunPower SPR-305-WHT with 8200 photovoltaic (PV) solar panel (Nser = 50, Npar = 164) in order supply load at micro-grid during islanding situation. The main purpose of this research is about the performance of load at micro-grid by varying the system parameters with Maximum Power Point Tracking (MPPT) applied into photovoltaic (PV) solar system. There is certain situation that will drop or increase the voltage based on current level of reactive power at micro-grid load and the improvised version of MPPT is proposed and introduced into the simulation for the system to optimize the output power from photovoltaic power generation. The process of MPPT functions by running a simulation on MATLAB software at ideal state. The contribution of this research will optimize the technique of MPPT. The superiority of the proposed non-linear controller is compared with the conventional Maximum Power Point Tracking (MPPT) controller and the computer analysis shows the elegance and effectiveness of this new control strategy. The effectiveness of both Maximum Power Point Tracking (MPPT) is shown to prove the title of this research.

ACKNOWLEDGEMENT

Firstly, *syukur Alhamdulillah,* thanks to Allah for giving me the opportunity to further my studies in master's degree programme and the strength to complete this long and challenging journey successfully. My gratitude and thanks also to my supervisor, Assoc. Prof. Dr. Naeem Hannoon, for his guidance and assistance during my studies.

Secondly, I would like to extend my gratitude to my co-supervisor, Dr Muhammad Nabil Bin Hidayat, for his help and interest.

Finally, a heartful thanks to my beloved parents, my brothers and my friends for their patience understanding, encouragement and warm support throughout the years.

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