## Behaviour of grid connected photovoltaic systems

Azuki Abdul Salam<sup>a</sup>; Ismail Adam<sup>a</sup>; Fatimah Zaharah Hamidon<sup>a</sup>; Ahmed M. A. Haidar<sup>b</sup> <sup>a</sup>Dept. of Electrical Engineering, University Kuala Lumpur-British Malaysian Institute, Selangor, Malaysia <sup>b</sup>Dept. of Electrical and Electronics Engineering, University Malaysia Pahang, Pahang, Malaysia

## ABSTRACT

The grid connected photovoltaic is one of the expected local power supply system that consists of distributed generators, loads, power storage devices, heat recovery and power electronics equipments. In this paper, a grid connected Photovoltaic (PV) energy system is presented to investigate the performance of the microgrid. The proposed model has been developed in Matlab-Simulink environment based on an improved control methodology incorporated within the Photovoltaic Generation System (PVGS). Finally, simulation results show the high performance of the proposed method and the recovered power is achieved.

#### **KEYWORDS:**

PV system; Grid connected PV systems; Modeling of PV systems; Distributed Generation

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## REFERENCES

- M. G. Villalva, et al., "Comprehensive Approach to Modeling and Simulation of Photovoltaic Arrays", IEEE Transactions on Power Electronics, vol. 24, 2009, pp. 1198-1208.
- 2. A. Timbus, et al., "Evaluation of Current Controllers for Distributed Power Generation Systems", IEEE Transactions on Power Electronics, vol. 24, 2009, pp. 654-664.
- N. Srisaen and A. Sangswang, "Effect of PV grid-connected system location on a distribution system", IEEE Asia Pacific Conference on Circuit and Systems, APCCAS, 2006, pp. 852-855
- A. Woyte, V. Van Thong, R. Belmans and J. Nijs, "Voltage fluctuations on distribution level introduced by photovoltaic systems", IEEE Transactions on Energy Conversion, vol. 21, no.1, 2006, pp. 202-209.
- 5. M. Thomson and D. G. Infield, "Impact of widespread photovoltaics generation on distribution systems", IET Journal of Renewable Power Generation, vol. 1, no. 1, 2007, pp. 33-40.