

## Documents

Rashid, M.M.<sup>a</sup>, Ali, M.Y.<sup>b</sup>, Hasan, M.H.<sup>c</sup>, Mokthar, N.S.<sup>a</sup>

**Optimization of a Reliable Grid- Connected PV-based Power Plant**

(2023) *AIP Conference Proceedings*, 2643, art. no. 050059, .

**DOI:** 10.1063/5.0112695

<sup>a</sup> Department of Mechatronics Engineering, International Islamic University Malaysia, Kuala Lumpur, Malaysia

<sup>b</sup> Mechanical Engineering Programme Area, Faculty of Engineering, Universiti Teknologi Brunei, Tungku Highway, Gadong, BE1410, Brunei Darussalam

<sup>c</sup> Department of Mechanical and Industrial Engineering Ryerson University, Toronto, Canada

**Abstract**

PV system can be considered as promising technologies in generating electrical energy. In order to meet the high demand of electric consumption much research on PV system have been done. This project focuses on maximizing the output energy from PV panel and maintain the amount of energy that has converted by a PV panel. Maximum power point tracking (MPPT) has been used in this project in optimizing the PV system. One of the methods of the MPPT technique which is Perturb and Observe (P&O) algorithm, easy to implement and has efficient performance in solving the optimization problem. The performance of P&O algorithm has been analysed through the simulation in MATLAB and experimental result. © 2023 American Institute of Physics Inc.. All rights reserved.

**References**

- Zebarjadi, M., Askarzadeh, A.  
**Optimization of a reliable grid-connected PVbased power plant with/without energy storage system by a heuristic approach**  
(2016) *Solar Energy*, 125, pp. 12-21.  
K., "Materials and Manufacturing Processes," Switzerland, Springer, 85-98 2019
- Verdugo, C., Candela, J.I., Luna, A., Rodriguez, P.  
**Power station for large scale photovoltaic power plants**  
(2017) *2017 6th International Conference on Renewable Energy Research and Applications, ICRERA 2017*, pp. 768-773.  
2017-Janua
- Jain, P., Agarwal, V., Muni, B.P.  
**Hybrid phase locked loop for controlling centralized inverters in large solar photovoltaic power plants**  
(2017) *IEEE International Conference on Power Electronics, Drives and Energy Systems, PEDES 2016*, pp. 1-7.  
2016-January December
- Li, C., Zhai, R., Yang, Y.  
**Optimization of a heliostat field layout on annual basis using a hybrid algorithm combining particle swarm optimization algorithm and genetic algorithm**  
(2017) *Energies*, 10, pp. 1-15.

**Correspondence Address**

Rashid M.M.; Department of Mechatronics Engineering, Malaysia; email: mahbub@iiium.edu.my

**Editors:** Ali A.M.Y., Karri R.R., Shams S., Rosli R., Rahman E.K.A., Singh R.

**Sponsors:** Berakas Power Company; Brunei Shell Petroleum; Huawei Technologies; Petrokon Utama Sdn Bhd.

**Publisher:** American Institute of Physics Inc.

**Conference name:** 8th Brunei International Conference on Engineering and Technology 2021, BICET 2021

**Conference date:** 8 November 2021 through 10 November 2021

**Conference code:** 185936

**ISSN:** 0094243X

**ISBN:** 9780735442795

**Language of Original Document:** English

**Abbreviated Source Title:** AIP Conf. Proc.

2-s2.0-85146523410

**Document Type:** Conference Paper

**Publication Stage:** Final

**Source:** Scopus

---

**ELSEVIER**

Copyright © 2023 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

 **RELX Group™**