

2026 IEEE 6th International Conference in Power Engineering Applications (ICPEA 2026)

**Langkawi, Malaysia
3-4 May 2026**

IEEE Catalog Number:
ISBN:

CFP26Z12-POD
979-8-3315-8147-3



Copyright © 2026, IEEE

All Rights Reserved

Copyright and Reprint Permissions:

Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP26Z12-POD
ISBN (Print-On-Demand):	979-8-3315-8147-3
ISBN (Online):	979-8-3315-8146-6

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA

Phone:	(845) 758-0400
Fax:	(845) 758-2633
E-mail:	curran@proceedings.com
Web:	www.proceedings.com

TABLE OF CONTENTS

Optimal Sizing and Placement of BESS to Enhance Frequency Stability with High Penetration of IBRs	1
<i>Pagnasatyavorn Sreynattha, Kimsrornn Khon, Vannak Vai, Sak Srey</i>	
A Hybrid GWO-XGBoost Framework for Predicting Power Outage Duration in Northern Mindanao Distribution Utility	7
<i>Allan Jay L. Baco, Abdul Aziz G. Mabaning, Noel Estoperez</i>	
An Attention-Based Hybrid ANN–RNN–CNN Architecture for Solar Power Forecasting	13
<i>Pakrigna Long, Muhd Khairulzaman Abdul Kadir, Kanendra Naidu A-L Vijyakumar</i>	
ResNeXt-50 for Thermographic PV Defect Classification: A Comparative Convolution Neural Network (CNN) Study	18
<i>Muhammad Arif Zakaria, Shahrani Shahbudin, Farah Yasmin Abdul Rahman, Marianah Masri Zuriati Janin</i>	
Optimal Placement of Electric Vehicle Charging Station (EVCS) Using Hybrid Leader-Follower Multiverse Lyrebird Optimization Algorithm (HLF-MVLOA)	24
<i>H. Mohamad, A. F. Mohamad Azizul Fitri, R.-N. Hasanah, Lilik Jamilatul Awal, Z. M. Yasin, N. A. Salim</i>	
A Modified Approach for Multi-EV Vehicle-to-Grid Control to Enhance Grid Stability	30
<i>Hossein Zeynal, Anahita Bashirnezhad, Zuhaina Zakaria</i>	
Techno-economic analysis of PV-integrated EV charging stations for a university campus microgrid	34
<i>Mohammad Reza Maghami, Jacqueline Lukose, Ka Fei Thang, Antik Debnath, Mooya Mabvuto Ali Akbar Firoozi</i>	
Time-of-Use Pricing as a Non-Wires Alternative for Peak Demand Mitigation: A Case Study of Rupert Island, Indonesia	40
<i>Budimansyah, Roni Irnawan, Yohan Fajar Sidik</i>	
Evaluating the Risk of Storing and Transporting the Hydrogen Energy in Oman Using Multi-Criteria Decision Making	46
<i>Sara Al Hosni, Sina Sayardoost Tabrizi, Reza Babazadeh, Mehdi A. Kamran</i>	
Field Performance Irradiance-Dependent Characterisation Analysis of Mono-crystalline PV Modules in Brunei Darussalam	55
<i>Mohammad Ishlah Rahman, Nor Asiah Muhamad, Sheik Mohammad Sulthan</i>	
Enhancing Energy Efficiency: A Comparative Study of LED Retrofits and Fluorescent Lighting Systems in Institutional Buildings	59
<i>N.Z. Saharuddin, G.D. Ambikabathy, E. E.Hassan, A.F. Abdul Kadir, K. Naidu, I. Kamal</i>	
Sizing and Performance Evaluation of Solar PV with Hydrogen System for Off Grid Energy Solution	67
<i>Ahmad Waqiyuddin Bin Ahmad Khairuddin, Nur Atharah Kamarzaman, Shahril Irwan Sulaiman Habibah Zulkefle</i>	
Optimizing Power Infrastructure Reinforcement using Distributed Generators: An Economic Loss-Based Analysis of Three Installation Scenarios	73
<i>Gayathri Bhaskar, Sivasankari GS, Narayanan K, Mithulananthan Nadarajah</i>	

Comparative Analysis of Fuzzy Inference Systems and Coefficient of Load for Short-Term Electrical Load Forecasting at Substation Level	79
<i>Rahmadwati Rahmadwati, Abdul Hafiz Harmizi, Rusmi Ambarwati, Miroslav Markovic, Rini Nur Hasanah Hadi Suyono</i>	
Comparative Performance Analysis of Machine Learning Classifiers for High Impedance Fault Detection in a PV-Integrated Microgrid	83
<i>Najwa Nasuha Mahzan, Mohammad Lutfi Othman, Noor Izzri Abdul Wahab, Veerapandiyan Veerasamy Nur Ashida Salim, Muhammad Iqbal Zakaria</i>	
Two-Timescale Joint Energy and Reserve Dispatch using Stochastic Dynamic Programming and Rolling Horizon Optimization	89
<i>Aleesha Bibi, Malik Intisar Ali Sajjad, Mehboob Riaz</i>	
Implementation of Infrared and Ultrasonic Sensors to Improve the Accuracy of Parking Space Availability Detection at IoT-Based Rest Areas	95
<i>Ahmad Fajar Baihaqi, Nilla Rachmaningrum, Dimas Adiputra, Kok Swee Sim</i>	
Coordinated Volt-Var Optimization for a Photovoltaic-Integrated IEEE 33-Bus Distribution System Using Genetic Algorithm and NSGA-II	99
<i>Sak Srey, Vannak Vai, Kimsrornn Khon, Pagnasatyavorn Sreynattha</i>	
Tuning the Piezoelectric Performance of PVDF/SnO ₂ Flexible Nanogenerator Film via Controlled Solution Immersion Time	105
<i>Wan Muhammad Haziq Wan Abd Manan, Habibah Zulkefle, Nur Atharah Kamarzaman, Lyly Nyl Ismail Muhammad Amir Zarif Azrai, Abdul Malek Abdul Wahab</i>	
A Topology-Oriented Review of GaN-Based High-Frequency DC-DC Converters	110
<i>Nurhafizah Elias, Nurhakimah Mohd Mukhtar</i>	
Electrical Baseline Characterization of a VFD-Driven Conveyor Motor Under Light-Load Industrial Conditions	116
<i>Chaitanya Pidugu</i>	
Study on Classroom Temperature Distribution in Hybrid Cooling System at Different Air Conditioner Setpoints	120
<i>Siti Zubaidah Bahrin, Nor Asiah Muhamad, Law Kah Haw</i>	
Precision Maximum Power Point Tracking for Photovoltaic Arrays Using Fuzzy Logic Control	126
<i>Muhammad Nabil Afiq Nor Azari, Ahmad Asri Abd Samat, Kamarulazhar Daud, Aimi Idzwan Tajudin Langlang Gumilar, Abdul Malek Saidina Omar</i>	
Hybrid Artificial Bee Colony-Neural Network for Output Power Prediction in GCPV Systems	132
<i>Puteri Nor Ashikin Megat Yunus, Muhammad Nasrullah Mohamad Din, Yusrina Yusof, Norziana Aminudin</i>	
Fuzzy Logic Controller Assisted Variable Step Size P&O MPPT Algorithm in Partially Shaded PV System	138
<i>Siti Nur Hajar Mohd Tarmizi, Muhammad Iqbal Zakaria, Najwa Nasuha Mahzan Mohd Abdul Talib Mat Yusoh, Muhammad Nizam Kamarudin, Nabil El Fezazi</i>	
Using Standard Ethernet and Hardware PTP for Distributed Control of Multi-Megawatt Converters	144
<i>Ralf Wegener, Stefan Soter</i>	
Effect of Stirring Time on the Oxidation After AC Breakdown Voltage Test of Insulation Oils	149
<i>Erra Aerwenny Roslan, Nor Asiah Muhamad, Ang Swee Peng</i>	

Adaptive Traffic Light System for Emergency Vehicles	155
<i>Nur Dalilah Nordin, Muhammad Nabil Iman Mohd Ghazali, Leslie Hoo Lek Hao</i>	
<i>Mohamed Sharfi Abdelgadir Omer, Ahmad Syauqi Adam Armadi, Dalila Mat Said, Nur Faizal Kasri</i>	
<i>Aizat Azmi, Chan Bun Seng</i>	
Assessment of Ground Flash Density in Southern Malaysia and Implications for Renewable Energy	161
<i>Muhamad Haziq Azraei Abdul Aziz, Dalina Johari, Faranadia Abdul Haris, Siti Zaliha Mohammad Noor</i>	
<i>Zuhaila Mat Yasin, Mohd Muzafar Ismail</i>	
A Stacking Ensemble Framework Based Prediction of Total Average Efficiency for Planar Monopole Antenna in High Voltage Partial Discharge Diagnostics	166
<i>Md. Shafat Bin Islam, Mohamadariff Othman, Hazlee Azil Illias, M. A. Taher, S. M. Kayser Azam</i>	
<i>Tarik Abdul Latef, Wong Jee Keen Raymond, Ali Othman, Ihsan Bin Ahmad Zubir</i>	
Impact of Electrode Surface Roughness on Electric Field Homogeneity, Conduction Current, and DC Breakdown in Air	171
<i>Ahmad Ghifari, Moch Dhofir, Tri Nurwati, Hadi Suyono, Rini Nur Hasanah, Corina Martineac</i>	
Performance of TENG Device using Cornstarch and PTFE as Charge Generating Layer	177
<i>Syaza Afiqah Fadzil, Lyly Nyl binti Ismail, Habibah binti Zulkefle, Nur Sa'adah binti Muhamad Sauki</i>	
<i>Mohd Abdul Talib bin Mat Yusoh, Norsabrina binti Sihab</i>	
Performance Evaluation of Reliability Indices in Islanded Microgrids Under Renewable Uncertainty	183
<i>Ali Q. Al-Shetwi</i>	
Dual-Stage CNN-Based Segmentation and Detection Framework for Precise Thermal Hotspot Localization in Solar Photovoltaic Modules	189
<i>Mohd Zulhamdy Ab Hamid, Kamarulazhar Daud, Muhammad Khusairi Osman, Iza Sazanita Isa</i>	
<i>Mohd Shawal Jadin, Rosheila Darus</i>	
Mathematical model of the operation of the DC-AC converter of an innovative hybrid electric train powered by hydrogen fuel cells	195
<i>Kirill Domanov, Stanislav Istomin</i>	
Development of Power System Analysis Simulator Using LabVIEW	200
<i>Nor Asiah Muhamad, Arif Rusyaidi Abdul Rahman, Swee Peng Ang, Sheik Mohammed Sulthan</i>	
Short-Term Load Forecasting Using Hybrid LSTM-ANN for Agricultural VSG-based Microgrids	206
<i>Rusmi Ambarwati, Fathur Rahman Al Farizy, Rini Nur Hasanah, Corina Martineac, Hadi Suyono</i>	
<i>M. Aziz Muslim</i>	
Comparative Analysis of Power Factor Correction in UTeM Building with and Without Solar Power Integration	212
<i>Elia Erwani Hassan, Muhammad Fadhli Amirudin, Zuhaila Mat Yasin, Nur Zawani Saharuddin</i>	
<i>Aida Fazliana Abdul Kadir, Nazrulazhar Bahaman</i>	
Optimizing Photovoltaic Efficiency Through Underground Cooling: A Comparative Review of Water and Air-Based Systems	221
<i>Rindi Wulandari, Iwa Garniwa, Faiz Husnayain</i>	
Microinverter Operating Temperature Reduction By Reconfiguration Installation Position	227
<i>Muhammad Azieuddin Shahrin, Nor Asiah Muhamad, Mohammad Ishlah Haji Abdul Rahman</i>	
A Hybrid AC-DC Shared Solar Photovoltaic System for Multi-Tenant Buildings	232
<i>Clark Darwin M. Gozon, Abdul Aziz G. Mabaning, Noel R. Estoperez</i>	

Optimal Allocation of Energy Storage Systems for Voltage Profile Enhancement and Power Loss Mitigation Under Wind Uncertainty	238
<i>Ahmad K. ALAhmad, Hazlie Mokhlis, Nadzirah Mansor, Saad Mekhilef, Hussain Shareef, Renuga Verayiah Saleh Ba-swaimi</i>	
Multiple Multiheaded Self-Attention Mechanisms for Medium- and Long-Term Power Prediction in Photovoltaic Power Systems	244
<i>Yunqiao Li, Kanendra Naidu, Nor Zulaily Binti Mohamad, Yan Feng, Aina Fatini</i>	
Comparative Analysis of Single-Tuned Passive Filters for Harmonic Mitigation Under Inductive and Capacitive Nonlinear Loads	250
<i>NFA Abdul Rahman, MSK Tepanus</i>	
Optimal Electric Vehicle Charging System and Wind Turbine Placement for Loss Control Using Integrated Optimization Technique in Distribution System	256
<i>Nur Eizzi Safia Ahmad Nasrudin, Ismail Musirin, Muhamad Hatta Hussain, Rahmatul Hidayah Salimin Nur Farahiah Ibrahim, Fathiah Zakaria</i>	
Impact of Distributed Generation Installation under Line Outage Contingency in Power System	262
<i>Fariesha Farhana Mohd Othman, Ismail Musirin, Nur Farahiah Ibrahim, Rahmatul Hidayah Salimin Nor Azwan Mohamed Kamari, Muhamad Hatta Hussain, A V Senthil Kumar, Mohd Helmi Mansor Fathiah Zakaria</i>	
Impact of Static VAR Compensator on Voltage Collapse Indicator Performance in Power System	268
<i>Nur Ramizah Rahim, Ismail Musirin, Nor Azwan Mohamed Kamari, Rahmatul Hidayah Salimin Mohd Helmi Mansor, Muhamad Hatta Hussain, Mohd Abdul Talib Mat Yusoh, Siti Rafidah Abdul Rahim Dalina Johari</i>	
Dynamic Optimal Power Flow for an Isolated Microgrid Using a Cheetah Optimizer	274
<i>Masoud Ahmadipour, Hussein Mohammed Ridha, Muhammad Murtadha Othman Mohammad Lutfi Bin Othman</i>	