

Energy and Power Engineering



ISSN: 1949-243X



9 771949 243001 12

<https://www.scirp.org/journal/epe>

Journal Editorial Board

ISSN: 1949-243X (Print) ISSN: 1947-3818 (Online)

<https://www.scirp.org/journal/epe>

Editor-in-Chief

Prof. Fernando A. Almeida Prado Jr.

University of Sao Paulo, Brazil

Associate Editors-in-Chief

Prof. Anjun Jin

Ningbo University, China

Prof. Giulio Lorenzini

University of Parma, Italy

Editorial Advisory Board

Prof. Ching-Chuen Chan

The University of Hong Kong, China

Prof. Ryuichi Yokoyama

Tokyo Metropolitan University, Japan

Prof. Xiaoxin Zhou

Chinese Society of Electrical Engineering, China

Editorial Board

Prof. Adel Ali Mohamed Abou El-Ela

Menoufia University, Egypt

Prof. Salem Al-Agtash

Santa Clara University, USA

Dr. Raslan Alenezi

Public Authority for Applied Education and Training, Kuwait

Dr. Touseef Amna

Albaha University, Saudi Arabia

Dr. Ighball Baniasad Askari

University of Zabol, Iran

Dr. Roberto Baca-Arroyo

Department of Electronics, School of Mechanical and Electrical Engineering (ESIME), National Polytechnic Institute, Mexico

Dr. Fabio Bisegna

Sapienza University of Rome, Italy

Dr. Jesús M. Blanco

University of the Basque Country, Spain

Prof. Ho Chang

National Taipei University of Technology, Chinese Taipei

Prof. Jiangping Chen

Shanghai Jiao Tong University, China

Prof. Young Nam Chun

Chosun University, South Korea

Prof. Guoliang Ding

Shanghai Jiao Tong University, China

Dr. Mostafa Eidiani

Khorasan Institute of Higher Education, Iran

Prof. Zhen Fang

Chinese Academy of Sciences, China

Dr. Herbert H. C. Iu

The University of Western Australia, Australia

Dr. M. Mohamed Iqbal

PSG Institute of Technology and Applied Research, India

Dr. Mirosław Kwiatkowski

AGH University of Science and Technology, Poland

Prof. Ruomei Li

Chinese Society of Electrical Engineering (CSEE), China

Prof. Zhengqi Li

Harbin Institute of Technology, China

Dr. Settapong Malisuwan

King Mongkut's Institute of Technology Ladkrabang, Thailand

Prof. Miodrag Mesarović

Belgrade, Zagreb and Sarajevo Universities, Serbia

Prof. Adnan Midilli

Recep Tayyip Erdogan University, Türkiye

Dr. Jingchun Min

Tsinghua University, China

Dr. Meng Ni

The Hong Kong Polytechnic University, China

Prof. Pucheng Pei

Tsinghua University, China

Dr. Ahmed Riyaz

BGSB University, India

Prof. Marc A. Rosen

University of Ontario Institute of Technology, Canada

Dr. Federico Scarpa

University of Genoa, Italy

Prof. Fuqiang Wang

Harbin Institute of Technology, China

Prof. Masafumi Yamaguchi

Toyota Technological Institute, Japan

Prof. Changhui Ye

Chinese Academy of Sciences, China

Prof. Bo Yu

China University of Petroleum, China

Table of Contents

Volume 16 Number 12

December 2024

**Design and Optimized Control of a Photovoltaic/Battery-Powered
Cathodic Protection System**

A. A. Hassan, H. M. Farghally, A. E.-S. A. Nafeh, N. M. Ahmed, F. H. Fahmy.....373

Topical Review for Vehicle Integrated Photovoltaics

M. Yamaguchi, T. Masuda, Y. Ota, K. Araki, K. Nishioka, N. Kojima, Y. Ohshita.....394

Energy and Power Engineering (EPE)

Journal Information

SUBSCRIPTIONS

The *Energy and Power Engineering* (Online at Scientific Research Publishing, <https://www.scirp.org/>) is published monthly by Scientific Research Publishing, Inc., USA.

Subscription rates:

Print: \$89 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: sub@scirp.org

SERVICES

Advertisements

Advertisement Sales Department, E-mail: service@scirp.org

Reprints (minimum quantity 100 copies)

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: sub@scirp.org

COPYRIGHT

Copyright and reuse rights for the front matter of the journal:

Copyright © 2024 by Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>

Copyright for individual papers of the journal:

Copyright © 2024 by author(s) and Scientific Research Publishing Inc.

Reuse rights for individual papers:

Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

Disclaimer of liability

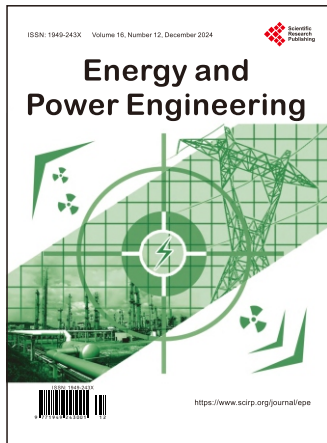
Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:

E-mail: epe@scirp.org

Call for Papers



Energy and Power Engineering

ISSN 1949-243X (Print) ISSN 1947-3818 (Online)

<https://www.scirp.org/journal/epe>

Energy and Power Engineering (EPE), a monthly journal, publishes research and review articles in all important aspects of electric power engineering and other professionals involved in the electric power industry. Both experimental and theoretical papers are acceptable provided they report important findings, novel insights, or useful techniques in these areas.

Editor-in-Chief

Prof. Fernando A. Almeida Prado Jr.

University of Sao Paulo, Brazil

Associate Editors-in-Chief

Prof. Anjun Jin

Ningbo University, China

Prof. Giulio Lorenzini

University of Parma, Italy

Editorial Advisory Board

Prof. Ching-Chuen Chan

The University of Hong Kong, China

Prof. Ryuichi Yokoyama

Tokyo Metropolitan University, Japan

Prof. Xiaoxin Zhou

Chinese Society of Electrical Engineering, China

Subject Coverage

EPE aims to strengthen relations between the energy sector, research laboratories, and universities. Additionally, accepted ones will immediately appear online followed by printed in hard copy. The topics to be covered by Energy and Power Engineering include, but are not limited to:

- ◆ Analysis of Hybrid Generation Systems
- ◆ Artificial Intelligence in Complex Power and Energy Systems
- ◆ Bio-Energy
- ◆ Building Energy Use and Energy Conservation
- ◆ CO₂ and Emission Issues
- ◆ CO₂ Capture and Storage
- ◆ Conventional Energy Power Generation
- ◆ Design and Dimensioning of Power Systems
- ◆ Distributed Generation
- ◆ Energy and Exergy Analyses
- ◆ Energy Policies and Strategies
- ◆ Energy Resources
- ◆ Energy Resources Assessment
- ◆ Energy Storage
- ◆ Energy Sustainability
- ◆ Gasification Processes and Technologies
- ◆ Heat Exchanger
- ◆ Hydrogen Energy and Fuel Cells
- ◆ Impact of Climate Changes on Energy Systems
- ◆ Integrating Renewable Energy to the Power Grid
- ◆ International Experiences with Energy Infrastructures
- ◆ Investment Planning for Energy Infrastructures
- ◆ Organic and Inorganic Photovoltaics
- ◆ Petroleum Engineering
- ◆ Planning and Operations of Power Systems
- ◆ Power Demand Forecasting and Management, Power Market
- ◆ Power Electronic Engineering
- ◆ Power Forecasting from Wind, Solar and Other Renewal Sources of Energy
- ◆ Power System Protection
- ◆ Power Transmission and Distribution
- ◆ Reliability Evaluation and Risk Analysis of Power Systems
- ◆ Renewable Energy Power Generation
- ◆ Smart Grid
- ◆ Socio-Economic and Power System Management
- ◆ Solar Energy Engineering
- ◆ Transmission and Capacity Planning
- ◆ Waste Energy Management
- ◆ Wind Energy Engineering

We are also interested in short papers (letters) that clearly address a specific problem, and short survey or position papers that sketch the results or problems on a specific topic. Authors of selected short papers would be invited to write a regular paper on the same topic for future issues of the EPE.

Notes for Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer review process. For more details about the submissions, please access the website.

Website and E-Mail

<https://www.scirp.org/journal/epe>

E-mail: epe@scirp.org