

# Journal of Power and Energy Engineering



ISSN: 2327-588X



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

# Journal Editorial Board

ISSN Print: 2327-588X ISSN Online: 2327-5901

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

---

## Editor-in-Chief

**Prof. Elias K. Stefanakos**

University of South Florida, USA

## Editorial Board

**Dr. Reza Alayi**

Department of Mechanics, Germe Branch, Islamic Azad University, Iran

**Dr. Mahajan Sagar Bhaskar**

Prince Sultan University, Saudi Arabia

**Dr. Roberto Capata**

University of Roma "Sapienza", Italy

**Prof. Wei-Hsin Chen**

National Cheng Kung University, Chinese Taipei

**Dr. Chun-Hu Cheng**

National Taiwan Normal University, Chinese Taipei

**Dr. Wen Tong Chong**

University Malaya, Malaysia

**Dr. Erdem Cuce**

Recep Tayyip Erdogan University, Turkey

**Dr. Smith Eiamsa-ard**

Mahanakorn University of Technology, Thailand

**Prof. D. Yogi Goswami**

University of South Florida, USA

**Prof. Afsin Gungor**

Akdeniz University, Turkey

**Prof. Nikolay Hinov**

Technical University of Sofia, Bulgaria

**Prof. Zhongjie Huan**

Tshwane University of Technology, South Africa

**Prof. Ahmed Kadhim Hussein**

University of Babylon, Iraq

**Dr. Freddie Liswaniso Inambao**

University of KwaZulu-Natal Durban, South Africa

**Dr. Long Jiang**

University of Aberdeen, UK

**Prof. Nnenesi A. Kgabi**

Polytechnic of Namibia, Namibia

**Prof. Young Min Kim**

Korea University of Science and Technology, South Korea

**Dr. Zhe Li**

Johns Hopkins University, USA

**Prof. Ching-Fuh Lin**

National Taiwan University, Chinese Taipei

**Prof. Rodolfo Dufo López**

University of Zaragoza, Spain

**Dr. M. MADHIARASAN**

Department of Computer Science and Engineering, Indian Institute of Technology Roorkee, Uttarakhand, India

**Prof. Elham B. Makram**

Clemson University, USA

**Dr. Sohrab Mirsaeidi**

Beijing Jiaotong University, China

**Prof. Zainura Zainon Noor**

Universiti Teknologi Malaysia, Malaysia

**Dr. Fernando Ortenzi**

ENEA-Italian Agency Department of Aeronautical and Automotive Engineering, Italy

**Prof. George Papadakis**

Agricultural University of Athens, Greece

**Dr. Elias Papanicolaou**

Solar & Other Energy Systems Laboratory Attiki, Greece

**Dr. Raul Rabinovici**

Ben-Gurion University of the Negev, Israel

**Prof. M. Ramamoorthy**

K L University, India

**Dr. Manuel Romero**

IMDEA Energy Institute, Spain

**Dr. Ravi S. Srinivasan**

University of Florida, USA

**Dr. Mohamad Fani Sulaima**

Universiti Teknikal Malaysia Melaka, Malaysia

**Prof. Gopal Nath Tiwari**

SRM University, India

**Dr. Vittorio Verda**

Politecnico di Torino, Italy

**Prof. Valery Vodovozov**

Tallinn University of Technology, Estonia

**Prof. Nikolai Voropai**

Energy Systems Institute of Russian Academy of Sciences, Russia

**Prof. Hongqiang Wang**

Northwestern Polytechnical University, China

**Prof. Lei Wang**

Hunan University, China

**Prof. Fushuan Wen**

Tallinn University of Technology (TalTech), Estonia

**Prof. Chao Xu**

North China Electric Power University, China

**Dr. Wenxian Yang**

Newcastle University, UK

**Dr. Yifei Wang**

School of Mechanical Engineering and Automation, Harbin Institute of Technology, China

**Dr. Xiaowei Zhou**

Northwestern University, USA

# Table of Contents

**Volume 10    Number 4**

**April 2022**

## **Analysis of Wind Speed Data and Wind Energy Potential for Seven Selected Locations in KSA**

S. A. AlGhamdi, A. M. Abdel-Latif, O. S. Abd El-Kawi, O. B. Abouelatta.....1

## **Improving the Energy Performance of a High-Pressure Hydraulic Turbine by Researching the Flow in the Flow Part**

K. Mironov, Y. Oleksenko, A. Gulakhmadov.....27

## **Application of Renewable Energy Options—The Role of Solar Adsorption Cooling Technology**

M. S. Abdulkadir, D. M. Kulla, M. U. Kaisan, T. O. Ahmadu, A. M. Kofa.....38

## **Micro-Grid Planning with Aggregator’s Role in the Renewable Inclusive Prosumer Market**

S. Sharma, S. Khator.....47

## **Thermal Behavior of Clay-Based Building Materials: A Numerical Study Using Microstructural Modeling**

A. Lkouen, M. Lamrani, A. Meskini, A. Khabbazi.....63

## **Toward Adaptation of Briquettes Making Technology for Green Energy and Youth Employment in Tanzania: A Review**

Y. M. Yustas, W. M. Tarimo, S. A. Mbacho, D. O. Kiobia, N. R. Makange, A. T. Kashaija,  
E. B. Mukama, C. K. Mzigo, F. R. Silungwe.....74

# Journal of Power and Energy Engineering (JPEE)

## Journal Information

### SUBSCRIPTIONS

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

#### **Subscription rates:**

Print: \$39 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### SERVICES

#### **Advertisements**

Advertisement Sales Department, E-mail: [service@scirp.org](mailto:service@scirp.org)

#### **Reprints (minimum quantity 100 copies)**

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

E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### COPYRIGHT

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

Copyright © 2022 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 © 2022 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: [jpee@scirp.org](mailto:jpee@scirp.org)

# Call for Papers

## Journal of Power and Energy Engineering

ISSN Print: 2327-588X ISSN Online: 2327-5901

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

Journal of Power and Energy Engineering (JPEE) is an international journal dedicated to the latest advancement of power and energy engineering. The goal of this journal is to provide a platform for scientists and academicians all over the world to promote, share, and discuss various new issues and developments in different areas of power and energy engineering.

### Editor-in-Chief

Prof. Elias K. Stefanakos

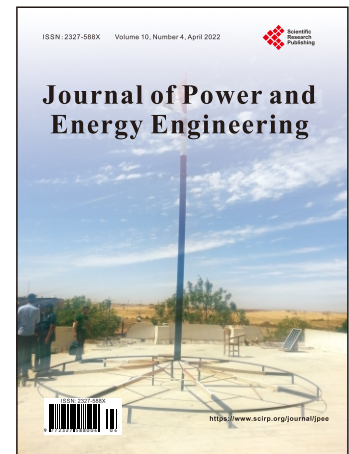
University of South Florida, USA

### Editorial Board

Dr. Reza Alayi  
Dr. Mahajan Sagar Bhaskar  
Dr. Roberto Capata  
Prof. Wei-Hsin Chen  
Dr. Chun-Hu Cheng  
Dr. Wen Tong Chong  
Dr. Erdem Cuce  
Dr. Smith Eiamsa-ard  
Prof. D. Yogi Goswami  
Prof. Afsin Gungor  
Prof. Nikolay Hinov  
Prof. Zhongjie Huan  
Prof. Ahmed Kadhim Hussein  
Dr. Freddie Liswaniso Inambao  
Dr. Long Jiang

Prof. Nnnesi A. Kgabi  
Prof. Young Min Kim  
Dr. Zhe Li  
Prof. Ching-Fuh Lin  
Prof. Rodolfo Dufo López  
Dr. M. MADHIARASAN  
Prof. Elham B. Makram  
Dr. Sohrab Mirsaeidi  
Prof. Zainura Zainon Noor  
Dr. Fernando Ortenzi  
Prof. George Papadakis  
Dr. Elias Papanicolaou  
Dr. Raul Rabinovici  
Prof. M. Ramamoorthy  
Dr. Manuel Romero

Dr. Ravi S. Srinivasan  
Dr. Mohamad Fani Sulaima  
Prof. Gopal Nath Tiwari  
Dr. Vittorio Verda  
Prof. Valery Vodovozov  
Prof. Nikolai Voropai  
Prof. Hongqiang Wang  
Prof. Lei Wang  
Prof. Fushuan Wen  
Prof. Chao Xu  
Dr. Wenxian Yang  
Dr. Yifei Wang  
Dr. Xiaowei Zhou



### Subject Coverage

All manuscripts must be prepared in English, and are subject to a rigorous and fair peer-review process. Accepted papers will immediately appear online followed by printed hard copy. The journal publishes original papers including but not limited to the following fields:

#### 1. Power Generation-Conventional and Renewable

Bio-energy technologies, process and utilization  
Environmentally-friendly technologies for power generation  
Geothermal and tidal wave energy  
Hydropower technologies and applications  
New technologies and design for energy efficiency  
New technologies for minimizing CO<sub>2</sub> generation  
Other sustainable energy  
Photovoltaics for solar power applications  
Safe nuclear energy generation and utilization  
Thermal power technologies and applications  
Waste products as fuel  
Wind power generation and utilization  
Advanced energy and power devices

#### 2. Power System Management

Application of wide area measurement system (WAMS)  
Control strategies for modern power system stability  
Integrated substation automation technologies  
Load modeling, estimation and forecast  
Modeling and simulation of large power systems  
Online monitoring and fault diagnosis system  
Power system analysis and optimization  
Power system management technologies

Power system monitoring and mitigation technologies  
Power system planning and operation

#### 3. Power Transmission and Distribution

Advanced distribution and SCADA technologies  
Electromagnetic analysis in power systems  
Electromagnetic compatibility in power systems  
Electromagnetic transient in high voltage power systems  
HVDC and flexible AC transmission system (FACTS)  
Insulation condition monitoring in power systems  
Over-voltage, lightning protection and grounding  
Plasma physics and the pulsed power technology  
Ultra high voltage (UHV) technologies

#### 4. Smart Grid Technologies

Agent-based computational economics for grid  
Agent-based mechanisms for grid markets  
Agent-based simulation of grid environments and markets  
Automated negotiation for grid resource allocation  
Engineering of grid markets and grid architectures  
Modeling of grid environments  
Resource allocation in grid scenarios using agent-based approaches  
Technical research on future application domains

We are also interested in: 1) Short Reports—2-5 page papers where an author can either present an idea with theoretical background but has not yet completed the research needed for a complete paper or preliminary data; 2) Book Reviews—Comments and critiques.

### Notes for Intending Authors

The submitted manuscript should not have been previously published in any form and must not be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer process. For more details about the submissions, please access the website.

### Website and E-Mail

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

E-mail: [jpee@scirp.org](mailto:jpee@scirp.org)