

ISSN: 2151-481X Volume 13, Number 5, May 2022



# Smart Grid and Renewable Energy



ISSN: 2151-481X



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

# Journal Editorial Board

ISSN Print: 2151-481X ISSN Online: 2151-4844

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

---

## Editor-in-Chief

**Prof. Yuanzhang Sun**

Wuhan University, China

## Editorial Advisory Board

**Prof. Ching Chuen Chan**

University of Hong Kong, China

**Prof. Yusheng Xue**

State Grid Electric Power Research Institute, China

**Prof. Ryuichi Yokoyama**

Tokyo Metropolitan University, Japan

**Dr. Xiaoxin Zhou**

Chinese Society of Electrical Engineering, China

## Editorial Board

**Prof. Gholam Hossein Bordbar**

Shiraz University, Iran

**Prof. Emanuele Calabrò**

Institute of Industrial Technology, Italy

**Prof. Ho Chang**

National Taipei University of Technology, Chinese Taipei

**Dr. Seokheun Choi**

Binghamton University, USA

**Prof. Kalyanmoy Deb**

Indian Institute of Technology, India

**Prof. Volkmar Dierolf**

Lehigh University, USA

**Dr. Daniel Garraín**

Spanish Ministry of Science and Innovation, Spain

**Dr. Herbert Iu**

University of Western Australia, Australia

**Dr. Maatouk Khoukhi**

United Arab Emirates University, UAE

**Prof. Chunxiang Li**

Shanghai University, China

**Dr. Dylan Dah-Chuan Lu**

University of Sydney, Australia

**Prof. D. Subbaram Naidu**

University of Minnesota, USA

**Prof. Maged Naguib Fahmy Nashed**

Power Electronic and Energy Conversion Department, Egypt

**Dr. Zafar Said**

Department of Sustainable Renewable Energy Engineering, University of Sharjah, UAE

**Dr. Surender Reddy Salkuti**

Department of Railroad & Electrical Engineering, Woosong University, South Korea

**Dr. Federico Scarpa**

University of Genoa, Italy

**Dr. Yahya Sheikhnejad**

University of Aveiro, Portugal

**Dr. Yang Shi**

University of Victoria, Australia

**Dr. Pierluigi Siano**

University of Salerno, Italy

**Prof. Igor I. Strakovsky**

The George Washington University, USA

**Dr. Salahadin Vaisi**

University of Kurdistan, Iran

**Prof. Huiming Wee**

Chung Yuan Christian University, Chinese Taipei

**Prof. Daniele De Wrachien**

State University of Milan, Italy

**Prof. Weiping Zhang**

Shanghai Jiao Tong University, China

# Table of Contents

**Volume 13    Number 5**

**May 2022**

**Maximum Power Point Tracking Using the Incremental Conductance Algorithm for  
PV Systems Operating in Rapidly Changing Environmental Conditions**

D. A. Asoh, B. D. Noumsi, E. N. Mbinkar ..... 89

**Performance Analysis of the Flywheel Assembly Design Using SolidWorks  
Modeling and Simulation Capabilities**

A. Abdallah, S. E. Bendaoudi, H. Naim, S. Habibi..... 109

## Smart Grid and Renewable Energy (SGRE)

### Journal Information

#### SUBSCRIPTIONS

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

##### **Subscription rates:**

Print: \$79 per copy.

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**

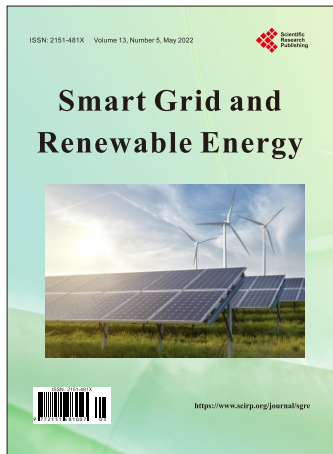
Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any 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: [sgre@scirp.org](mailto:sgre@scirp.org)

# Call for Papers



# Smart Grid and Renewable Energy

ISSN Print: 2151-481X ISSN Online: 2151-4844

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

*Smart Grid and Renewable Energy (SGRE)* is an international journal dedicated to the latest advancement of smart grid and renewable energy. 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 smart grid and renewable energy.

## Editor-in-Chief

Prof. Yuanzhang Sun

Wuhan University, China

## Editorial Advisory Board

Prof. Ching Chuen Chan

University of Hong Kong, China

Prof. Yusheng Xue

State Grid Electric Power Research Institute, China

Prof. Ryuichi Yokoyama

Tokyo Metropolitan University, Japan

Dr. Xiaoxin Zhou

Chinese Society of Electrical Engineering, China

## Subject Coverage

All manuscripts submitted to SGRE must be previously unpublished and may not be considered for publication elsewhere at any time during SGRE's review period. Additionally, accepted ones will immediately appear online followed by printed hard copy. The topics to be covered by Smart Grid and Renewable Energy include, but are not limited to:

- Bio-Energy Technologies, Process and Utilization
- Concept and Structure of Smart Grid
- Decision Making under Uncertainty in the Integration of Renewable Energy Systems
- Design of Sustainable Product-Service Business Models
- Development of Smart Grid
- Environmental-Friendly Technologies for Power Generation
- Geothermal and Tidal Wave Energy
- Hydropower Technologies and Applications
- Information and Smart Meter Reading
- Integrated Energy and Communications
- MEMS & NEMS and Their Applications for Power Generation
- New Technologies and Design for Energy Efficiency
- New Technologies for Minimizing CO<sub>2</sub> Generation
- Operations Research for Green Logistics
- Photovoltaic for Solar Power Applications
- Power System Analysis and Optimization
- Power System Planning and Operation
- Service Optimization for Renewable Energy Supply
- Solar Energy Utilization—Heat and Mass Transfer Technology
- Wind Power Generation and Utilization

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 SGRE.

## 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/sgre>

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