# Frontier Energy System and Power Engineering

Articles	Page
Monitoring and Controlling of The Hybrid System using Internet of Things for the Energy Transaction	1-9
Sulton Ari Wibowo, Dyah Lestari Implememntation of Gyrinops Versteegii Gaharu Leaves as A Dye Sensitized Solar Cell	10-13
Reza Maulana Mashari, Dwi Prihanto Performance Comparative Analysis of Monocrystalline and Polycrystalline Single Diode Solar Panel Models using the Five Parameters Method	14-19
Rizal Akbarudin Rahman Arief, Aripriharta, Hari Putranto Power Optimization of Electric Developments in Diesel Power Plant for the Electrical Energy Sources using Dynamic Programming Algorithm	20-26
Sigit Prasetyo Haq, Muladi, Siti Sendari Load Impact Analysis Toward Power Loss in Distribution Substation in Wlingi District	27-33

Tony Agus Styawan, Yuni Rahmawati, Dwi Prihanto







Volume 1 Nomor 1 January 2019

**Editor in Chief** 

A.N. Afandi Universitas Negeri Malang, Indonesia

**Managing Editor** 

Aripriharta Aripriharta Universitas Negeri Malang, Indonesia

**Editor Members** 

Takashi Hiyama Kumamoto University, Japan

Goro Fujita Shibaura Institute of Technology, Japan

Mahmoud Elsisi Benha University, Egypt

Abdul Haleem University of Petroleum and Energy Studies, United Arab Emirates

Hossein Nabavi WesTrac Cat, Australia

Amlan Basu University of Strathclyde, United Kingdom Wahyu Mulyo Utomo Universiti Tun Hussein Onn, Malaysia

Muhamad Faizal bin Yaakub Universiti Teknikal Malaysia Melaka, Malaysia

Faridah Hanim Binti M.N. Universiti Tun Hussein Onn, Malaysia

Saeed Mian Qaisar Effat University, Saudi Arabia

Zameer Ahmad Delft University of Technology, Netherlands

Abdelkader Benabdellah Université de Tiaret, Algeria Shah Fahad Zhejiang University, China

Pedram Asef University of Surrey, United Kingdom

Djamila Rekioua Ziani University of Bejaia, Algeria Hemlal Bhattarai Royal University of Bhutan, Bhutan

Zahira Anane University of Setif, Algeria

Wathiq Mansoor University of Dubai, United Arab Emirates

Salim Djeriou M'sila University, Algeria

Dr Pitshou Ntambu Bokoro University of Johannesburg, South Africa Wesley Doorsamy University of Johannesburg, South Africa

Salih Burak Kemer Duzce University, Turkey

Nedim TurkunIstanbul Aydin University, TurkeyNi Made Ary Esta Dewi W.Universitas Udayana, IndonesiaMade Suta YadnyaUniversitas Mataram, IndonesiaNyoman GunantaraUniversitas Udayana, Indonesia

Dimas Anton Asfani Institut Teknologi Sepuluh Nopember, Indonesia

Arwindra Arwindra Institut Teknologi Bandung, Indonesia

Khairul Anam Universitas Jember, Indonesia

Darlis Herumurti Institut Teknologi Sepuluh Nopember, Indonesia

Muhammad Facta Universitas Diponegoro, Indonesia Sarjiya Sarjiya Universitas Gajah Mada, Indonesia Rini Nur Hasanah Universitas Brawijaya, Indonesia Ferdian Ronilaya Politeknik Negeri Malang, Indonesia

**Editor Assistants** 

Irham Fadlika Universitas Negeri Malang, Indonesia Quota Alief Sias Universitas Negeri Malang, Indonesia Langlang Gumilar Universitas Negeri Malang, Indonesia Muhammad Afnan Habibi Universitas Negeri Malang, Indonesia



Volume 1

Nomor 1

January 2019

### **About the Journal**

Frontier Energy System and Power Engineering, FESPE, is an International Journal registered at e-ISSN: 2720-9598. FESPE is officially published by Electrical Engineering, State University of Malang, Indonesia. This journal is the Peer Review and Open Access International Journal, published twice a year in January and July relating to the broad scope of the Energy System and Power Engineering. FESPE provides a flagship forum for academics, researchers, industry professionals, engineers, consultants, managers, educators, and policymakers who work in engineering to contribute and disseminate new innovative works in energy systems, power engineering, and other related themes.

# Aim and Scope

The purpose of FESPE is to be a platform for Scholars, Academics, Researchers, Writers, Engineers, Technicians, and others through the promotion of discoveries, views, innovations, analyzes, and new research results in various fields of electrical engineering to advance and develop technology for a better life. The FESPE is concerned in a wide-scope of the Energy System and Power Engineering, including all related partial topics, but not limited, such as:

- Power Generation and Distributed Generation
- Power Engineering and Smart Grid
- Transmission and Distribution Systems
- Protection System and Security
- Automation and Control in Power system
- Power System Optimization
- Power Quality and Energy Management
- High Voltage and Insulation Technology
- SCADA and Power System Information
- Renewable Energy and Energy Conversion
- Energy System and Energy efficiency
- Intelligent Optimization for Management Energy
- Advanced Material for Renewable Energy
- Storage and Battery Technology
- Energy Exploration and Exploitation
- Green Energy and Natural Source
- Power Control and Stability System
- Power Consumption and Energy Prediction
- Electric Vehicle and green technology
- Power Electronics and Motor Drives
- Etc.

# Call for Paper

The FESPE invites you to submit your research works via our Online Submission System or through E-mail at fespe@um.ac.id or fespe.journal@gmail.com. Make sure that the submitted manuscript should not have been submitted or published previously anywhere else for publication. All received manuscripts will go through Peer Reviews and plagiarism checker.

Frequency: 2 Issues per year Areas Covered: Multidisciplinary Accepted Language: English only

# **Publication Charges**

The FESPE is published with NO CHARGE for the author.

FESPE@ 2019 January e-ISSN: 2720-9598 Indonesia



Volume 1

Nomor 1

January 2019

# **Open Access Statement**

The FESPE follows Open Access as a publishing model. Based on this model, each paper is provided hopefully immediate, worldwide, barrier-free access to the full text for everyone. In this model, the publication costs are covered by the publisher with all published manuscripts that are freely available to all interested online readers.

### **Content Disclaimer**

The views and opinions expressed in the articles published in this journal are not FESPE views or opinions. In each article, the author is responsible for own content. FESPE has the right to make changes or deletions of content at any time without notice. FESPE does not state or guarantee that the information available on or through the website will be true, accurate, timely or reliable. Any research content written by the author is the opinion of the author and is not intended to defame religion, ethical groups, clubs, organizations, companies, individuals or anyone or anything. Any errors in the content found are the writer's mistake.

### Author

The authors should use a template and follow the instructions set. In detail, the manuscript should be written in a maximum of 10 pages type with 'Times New Roman' font style, and following the TEMPLATE of FESPE and the accepted manuscript must be companied with the COPYRIGHT of FESPE. Each reference should be cited in the main related passage and it should be written using a Reference tool, such as Mendeley or Zotero using the IEEE style.

### **Reviewers and Editors**

We invite researchers, practicians, analyzers, academicians who want to be a reviewer or editor board members. Please send your CV to fespe@um.ac.id or fespe.journal@gmail.com.

# **Conference Partner**

The publication partner for the international conference please send a proposal to fespe@um.ac.id or fespe.journal@gmail.com.

e-ISSN: 2720-9598

### **Journal Contact**

FRONTIER ENERGY SYSTEM AND POWER ENGINEERING Electrical Engineering, Universitas Negeri Malang Jl. Semarang 5, Malang 65145, Jawa Timur, Indonesia http://journal2.um.ac.id/index.php/fespe/index Emails: fespe@um.ac.id, fespe.journal@gmail.com

# **Principal Contact**

an.afandi@um.ac.id

# **Support Contacts**

irham.fadlika.ft@um.ac.id langlang.gumilar.ft@um.ac.id quota.alief.ft@um.ac.id afnan.habibi.ft@um.ac.id



Volume 1 Nomor 1 January 2019

# **Table of Content**

Article	Page
Monitoring and Controlling of The Hybrid System using Internet of Things for the Energy Transaction Sulton Ari Wibowo, Dyah Lestari	1-9
Implememntation of Gyrinops Versteegii Gaharu Leaves as A Dye Sensitized Solar Cell Reza Maulana Mashari, Dwi Prihanto	10-13
Performance Comparative Analysis of Monocrystalline and Polycrystalline Single Diode Solar Panel Models using the Five Parameters Method Rizal Akbarudin Rahman Arief, Aripriharta, Hari Putranto	14-19
Power Optimization of Electric Developments in Diesel Power Plant for the Electrical Energy Sources using Dynamic Programming Algorithm  Sigit Prasetyo Haq, Muladi, Siti Sendari	20-26
Load Impact Analysis Toward Power Loss in Distribution Substation in Wlingi District  Tony Agus Styawan, Yuni Rahmawati, Dwi Prihanto	27-33