Aims and Scope

The International Journal of Energy and Environment (IJEE) is the official journal of the International Energy and Environment Foundation providing an international forum for the fields of Energy and Environment. The journal aims to provide the most complete and reliable source of information on current developments in the field. The emphasis will be on publishing quality articles rapidly and making them freely available to researchers worldwide. The journal has a distinguished editorial board with extensive academic qualifications, ensuring that the journal will maintain high academic standards and has a broad international coverage. There are no page charges and all articles are indexed by the major indexing media therefore providing the maximum exposure to the articles. The scope of the journal includes the following:

Energy
- Fuel cells.
- Hydrogen energy.
- Solar energy conversion and photovoltaics.
- Wind energy.
- Hydro energy.
- Micro- and nano-energy systems and technologies.
- Biofuels and alternatives.
- Hybrid / integrated energy systems.
- Energy conversion, conservation and management.
- Energy efficient buildings.
- Energy storage.
- Energy and sustainable development.
- Advanced visualization techniques, virtual environments and prototyping.

Environment
- Energy and environmental impact.
- Assessment of risks from water, soil and air pollution; effective and viable remedies.
- Evaluation and management of environmental risk and safety.
- Environment and sustainable development.
- Environmental education and training.
- Analysis of contaminants.
- Contaminant source characterization, transport and deposition.
- Multi-media sampling / monitoring (air, soil, water, sediment).
- Quality assurance / control.
- Legislative issues and guidelines.
- Remediation.
- Climate change.

A note to authors

Submission of articles

Articles submitted to the Review should be original contributions, not previously published, and should not be under consideration for any other publication at the same time. The submitting author is responsible for obtaining agreement of all co-authors as well as any sponsors' required consent before submitting a paper. Responsibility for the content of a paper lays on the Authors and not on the Editors or the Publisher.

Formatting instructions can be found on author guidelines and must be strictly followed or else your paper will not be published. The paper template represents the basic guidelines and desired layout final manuscript of International Journal of Energy and Environment (IJEE). It’s compulsory to use the template for the preparation of your paper. Full instructions can be found on the web site (http://www.IJEE.IEEFoundation.org).

Your Submitted Article
- Your article will be peer-reviewed and published very fast.
- Your biography will appear at the end of your article.
- Your article will be published free of charge. Free use of colour where this enhances the article.
- Your article can be read by potentially millions of readers, which is incomparable to publishing in a traditional subscription journal. All interested readers can read, download, and/or print your article at no cost!
- Your article will obtain more citations.
- Moreover, all articles are indexed by the major indexing media therefore providing the maximum exposure to the articles.
G. N. Tiwari
Centre for Energy Studies, Indian Institute of Technology Delhi, Hauz Khas, New Delhi - 110 016, India.

Bor-Jang Tsai
Department of Mechanical Engineering, Chung Hua University, No. 707, Sec. 2, Wu Fu Rd., Hsinchu 300, Taiwan.

Athanasios Tsolakis
School of Mechanical Engineering, University of Birmingham, Edgbaston, Birmingham, B15 2TT, U.K.

Per Tunestal
Department of Energy Sciences, Lund University, SE-221 00 Lund, Sweden.

Aynur Ucar
Department of Mechanical Engineering, Firat University, Elazig, Turkey.

Despina Vamvuka
Department of Mineral Resources Engineering, Technical University of Crete, University Campus, Hania 73100, Crete, Greece.

Virendra Kumar Vijay
Centre for Rural Development and Technology, Indian Institute of Technology Delhi, Hauz Khas, New Delhi 110016, India.

Shengwei Wang
Department of Building Services Engineering, The Hong Kong Polytechnic University, Hong Kong.

Yi-Ming Wei
Center for Energy and Environmental Policy Research (CEEP), Beijing Institute of Technology, No.5 South Zhongguancun Street, Haidian District, Beijing 100081, P.R.China.

Gwomei Wu
Chang Gung University, 259 Wen Hua 1st Road, Kweisan, Taoyuan 333, Taiwan.

Anke Weidlich
SAP Research, SAP AG, Vincenz-PrieBnitz-Str. 1, D-76139 Karlsruhe, Germany.
# Contents

**Prospects of concentrating solar power to deliver key energy services in a developing country.**  
Charikleia Karakosta, Charalampos Pappas, John Psarras  
771-782

**Experimental investigations and CFD study of temperature distribution during oscillating combustion in a crucible furnace.**  
J. Govardhan, G.V.S. Rao, J. Narasaiah  
783-796

**Cooling load and COP optimization of an irreversible Carnot refrigerator with spin-1/2 systems.**  
Xiaowei Liu, Lingen Chen, Feng Wu, Fengrui Sun  
797-812

**Optimal cost and allocation for UPFC using HRGAPSO to improve power system security and loadability.**  
Marouani I., Guesmi T., Hadj Abdallah H., Ouali A.  
813-828

**Online performance assessment of heat exchanger using artificial neural networks.**  
C. Ahilan, S. Kumanan, N. Sivakumaran  
829-844

**Energy efficiency and cost analysis of canola production in different farm sizes.**  
S. H. Mousavi-Avval, S. Rafiee, A. Jafari, A. Mohammadi  
845-852

**Multi criteria analysis in environmental management: Selecting the best stormwater erosion and sediment control measure in Malaysian construction sites.**  
Ibrahiem Abdul Razak Al-Hadu, Lariyah Mohd Sidek, Mohamed Nor Mohamed Desa, Noor Ezlin Ahmad Basri  
853-862

**A capillary-based method determining the permeability of sand layer for geothermal applications.**  
Huajun Wang, Hongjie Zhao, Chengying Qi  
863-870

**Enhancement of emission characteristics of a direct injection diesel engine through porous medium combustion technique.**  
C. Kannan, P. Tamilporai  
871-876

**MPPT control of wind generation systems based on FNN with PSO algorithm.**  
Chih-Ming Hong, Whei-Min Lin, Ching-Hsing Chen, Ting-Chia Ou  
877-886

**Status and prospects for household biogas plants in Ghana – lessons, barriers, potential, and way forward.**  
Edem Cudjoe Bensah, Moses Mensah, Edward Antwi  
887-898
Performance and emission characteristics of diesel engine run on biofuels based on experimental and semi analytical methods.
Donepudi Jagadish, Puli Ravi Kumar, K. Madhu Murthy

Ecological optimization of endoreversible chemical engines.
Dan Xia, Lingen Chen, Fengrui Sun

Comparative thermal analysis of theoretical and experimental studies of modified indirect evaporative cooler having cross flow heat exchanger with one fluid mixed and the other unmixed.
Trilok Singh Bisoniya, S.P.S. Rajput, Anil Kumar

Energy storage in field operations of sunflower production using data envelopment analysis approach.
S. H. Mousavi-Avval, S. Rafiee, A. Jafari, A. Mohammadi

Effect of heat source on MHD free convection flow past an oscillating porous plate in the slip flow regime.
S. S. Das, L. K. Mishra, P. K. Mishra