# International Journal of Energy Optimization and Engineering

January-March 2013, Vol. 2, No. 1

#### **Table of Contents**

## Special Issue on "Fuzzy Decision Making in Energy Optimization and Engineering" Guest Editorial Preface

i Cengiz Kahraman, Department of Industrial Engineering, Istanbul Technical University, Istanbul, Turkey

#### Special Section Research Articles

#### 1 Multi-Criteria Decision Aid for Sustainable Energy Prioritization Using Fuzzy Axiomatic Design

Basar Oztaysi, Department of Industrial Engineering, Management Faculty, Istanbul Technical University, Maçka, Beşiktaş, Istanbul,

Turkey

Mine İsik Department of Industrial Engineering, Management Faculty, Istanbul Technical University, Maçka, Beşiktaş, Istanbul, Turkey

Secil Ercan, Department of Industrial Engineering, Management Faculty, Istanbul Technical University, Maçka, Beşiktaş, Istanbul, Turkey

#### 21 Assessment of Nuclear Energy Competiveness Using a Multi-Criteria Fuzzy Approach

Fausto Cavallaro, Department of Economics, Management and Social Sciences, University of Molise, Campobasso, Italy

#### 37 Sustainable Development by Rural Energy Resources Allocation in India: A Fuzzy Goal Programming Approach

A. M. Jinturkar, Anuradha Engineering College, Chikhli, India,

S. S. Deshmukh, Centre for Environmental Strategy, University of Surrey, Surrey, London, UK

#### 50 Evaluation of Fuzzy Linear Programming Application in Energy Models

Mehdi Sadeghi, Department of Economics, Imam Sadiq University, Tehran, Iran Hossein Mirshojaeian Hosseini, Department of Economics, Imam Sadiq University, Tehran, Iran

#### RESEARCH ARTICLES

#### 60 A New Improved Particle Swarm Optimization for Solving Nonconvex Economic Dispatch Problems

Jirawadee Polprasert, Energy Field of Study, School of Environment, Resources and Development, Asian Institute of Technology, Pathumthani, Thailand

 $We erak orn\,Ongs akul,\,Energy\,Field\,of\,Study,\,School\,of\,Environment,\,Resources\,and\,Development,\,Asian\,Institute\,of\,Technology,\,Pathumthani,\,Thailand$ 

Vo Ngoc Dieu, Department of Power Systems, Electronic Electrical Engineering Faculty, Ho Chi Minh City University of Technology, Ho Chi Minh City, Vietnam

#### 78 Microgrids Emergency Control and Protection: Key Issues and New Perspectives

Hassan Bevrani, Department of Electrical and Computer Engineering, University of Kurdistan, Sanandaj, Iran Mehrdad Gholami, Department of Electrical and Computer Engineering, University of Kurdistan, Sanandaj, Iran Neda Hajimohammadi, Department of Electrical and Computer Engineering, University of Kurdistan, Sanandaj, Iran

### 101 A Selection of Optimal Electrical Energy Equipment Using Integrated Multi Criteria Decision Making Methodology

K. D. Maniya, Department of Mechanical Engineering, C. K. Pithawalla College of Engineering & Technology, Veer Narmad South Gujarat University, Surat, India

M. G. Bhatt, Department of Production Engineering, Shantilal Shah Engineering College, Bhavnagar University, Bhavnagar, India

#### Convright

The International Journal of Energy Optimization and Engineering (ISSN 2160-9500; eISSN 2160-9543). Copyright © 2013 IGI Global. All rights, including translation into other languages reserved by the publisher. No part of this journal may be reproduced or used in any form or by any means without written permission from the publisher, except for noncommercial, educational use including classroom teaching purposes. Product or company names used in this journal are for identification purposes only. Inclusion of the names of the products or companies does not indicate a claim of ownership by IGI Global of the trademark or registered trademark. The views expressed in this journal are those of the authors but not necessarily of IGI Global.

The International Journal of Energy Optimization and Engineering is currently listed or indexed in: Bacon's Media Directory; Cabell's Directories; Google Scholar; IAOR Online; IndexCopernicus; INSPEC; JournalTOCs; MediaFinder; RePEc; The Standard Periodical Directory; Ulrich's Periodicals Directory