2017 IEEE International Conference on Smart Grid and Smart Cities (ICSGSC 2017)

Singapore
23 – 26 July 2017

IEEE Catalog Number: CFP17URA-POD
ISBN: 978-1-5386-0505-9

Copyright © 2017 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number: CFP17URA-POD
ISBN (Print-On-Demand): 978-1-5386-0505-9
ISBN (Online): 978-1-5386-0504-2

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

2017 IEEE International Conference on Smart Grid and Smart Cities

(ICSGSC 2017)

Table of Contents

Preface vii
Committees viii

Renewable Energy

The Basic Structure of the Feed-in Tariff System in Japan 1
Chen Fuyi

Potential of Renewable Energy from Waste Mitigation of Gas Emissions of CH_4 and CO_2 in Bontang City, East Borneo 6
Sitti Hamnah Ahsan, Salama Manjang, Syafaruddin, Merna Baharuddin

Conceptualising the Development of Green Energy in Taiwan: A Driving Force Analysis 10
Wan-Ching Wang, Yen-Tzu Chen

An Overview on Cyber-Physical Systems of Energy Interconnection 15
Guo Jinghong, Hu Ziwei, Zhang Yan3, Zhang Tao, Liu Yajie, Zhang Fuxing

Extraction of Nuclear Fuels from Coal Using Microwave Induced Plasma Gasification and Electromagnetic Plasma Separation Processes 22
Raghav Kumar, Philip K. Panicker

Using Sodium Hydroxide with Microwave to Enhance the Saccharification Efficiency of Water Hyacinth to Improve the Optimal Pre-treatment for Producing into Biomass Butanol 28
Shang-Cyuan Chen, Yuan-Chung Lin, Kang-Shin Chen, Syu-Ruei Jhang

Solar Energy Development and Utilization

Performance Analysis of a Solar-driven Humidification Dehumidification Desalination Systemin Summertime..... 33
W. F. He, D. Han, X.K. Zhang, L. Huang

Reducing the Cost of Solar Home System Using the Data from Data Logger 37
Shahidul Islam Khan, Sheikh Arif Raihan, Md. Habibullah, Sk. Fahim Abrar

An Automated Solar-Powered Aquaponics System towards Agricultural Sustainability in the Sultanate of Oman 42
Analene Montesines Nagayo, Cesar Mendoza, Eugene Vega, Raad K.S. Al Izki, Rodrigo S. Jamisola Jr.

Decision Support Model for Solar Plant Site Selection 50
Anuchit Thongpun, Supapit Nasomwart, Panisara Peesiri, Narameth Nananukul

Numerical Analysis of CZTS Solar Cell with In_2S_3 Buffer Layer-A study of a CZTS based thin film solar cell, concerning the effects of several parameters on its electrical performance 55
Sakib Mohammad, Md. Noumil Tousif, A. A. Ferdous, Md Ashraful Hoque, Mohammad Wahidur Rahman

Energy and Environment Engineering

A Control Algorithm for a Heterogeneous Virtual Battery Storage Providing FCR Power 61
Jonas Schlund and Reinhard German

Clean and Energy-Efficient Hydrogen Production and Storage from Coal 67
Muhammad Aziz

Machine Learning Based Prediction of Thermal Comfort in Buildings of Equatorial Singapore 72
Tanaya Chaudhuri, Yeng Chai Soh, Hua Li, Lihua Xie

GHG Abatement Costs and Potentials: An opportunity benefit for India through Clean Development Mechanism (CDM) 78
Manasi Gore, Meenal Annachhatre

A Framework of Factors Affecting Supply Chain Flood Resilience 84
Worapong Chaidilok, Sun Olapiriyakul

Wind Power Prediction and Generation System

A Hybrid Approach for Promoting Low Carbon Technologies in Distributed Generation Planning 89
Sandeep Kaur, Manmeet Kaur, Ganesh Kumbhar, Rintu Khanna

A Quantum-Inspired Approximate Dynamic Programming Algorithm for Unit Commitment Problems Considering Wind Power 94
Hua Qin, Hua Wei

Proposition of Novel Real Time Hot-Spot Detection Method for PV Generation System 99
Kazutaka Itako, Naoaki Iiduka, Tsugutomo Kudoh, Keishin Koh

Implementation of an IEC 61400-25 Based Wind Power Plant SCADA System-Case Study: DaTan Wind Power Plant of the Taiwan Power Company 103
Che-I Lin, Jen-Li Liao, Cheng-Hsien Lin, Jian-Li Dong

Comparitive CFD Analysis of Darrieus Wind Turbine with NTU-20-V and NACA0018 Airfoils 108
P. Mohan Kumar, M.Mohan Ram Surya, N.Srikanth

Biomass Power Generation Supply Chain Planning 115
Jirasak Ji, Nammon Sittibud, Vorakrit Raoupatham, Narameth Nananukul

On the Improvement of Starting Torque of Darrieus Wind Turbine with Trapped Vortex Airfoil 120
P. Mohan Kumar, M.Mohan Ram Surya, N.Srikanth

Wind Resource Analysis and Optimization of Offshore Wind Farm Layout in the Central Taiwan 126
Pei-Chi Chang, Chi-Ming Lai

Component Decomposition to Improve Precision of Short-Term Wind Speed Forecasting 132
Hui Li

Power Electronics and Power Transmission

Insulator Identification Method Based on Infrared Image 137
Liu Zhaohui, Fu Weiping, Yin Zihui, Liu Yunpeng, Wang Jiangwei, Pei Shaotong

Single Insulator Infrared Image Fault Diagnosis Method Based on Sparse Presentation 142
Xu Changfu, Hu Chengbo, Xu Jiayuan, Liu Yunpeng, Ji Xinxin, Pei Shaotong

Voltage Regulation of Residential DC Distribution Feeder using Coordinated Battery Energy Storage Units 146
Ram Krishan, Ashu Verma, Sukumar Mishra

Fusion Networking Technology for IEC 61850 Inter Substation Communication 152
Charles M. Adrah, Steinar Bjornstad, Øivind Kure

A Modeling of Distance Protection Relay Based on Kalman Filter: An Application for Vietnam's 500kV Power Transmission Lines....157
Duc Hoan Huynh and Xuan Khoa Tran

Influence of Deteriorated Porcelain Insulator on Electric Field and Potential Distribution of Insulators Strings in 110kV Transmission Lines....162
Xu Changfu, Hu Chengbo, Xu Jiayuan, Liu Yunpeng, Zhang Kaiyuan, Pei Shaotong

Design of New Wireless Power Transmission Device Based on PWM Control IC SG3525....167
Yang Yao, Xue-Li Chen, Shun-xiang Ji, Si Zhang

Dynamic Phasor and Frequency Estimation with Harmonic and DC Offset Infiltration by Using Weight Least Squared Method....172
Le Thi Minh Trang, Ivan Uhliř

Transient Stability Study in Solar Photovoltaic-wind Plant Based Multimachine System....178
Sunitha Anup, Ashu Verma, T. S. Bhatti

Performance Analysis of Cylindrical Mixing Chamber Ejector Based on Real Gas Properties....183
Chen Hongjie, Wu Guoshan, Lu Wei

Operation and Management of Smart Grid

Enabling Smart Grids through Advanced Communication and Control....189
Zain ul Abideen, Sibtain ul Hassan

A Comprehensive Overview on the Impact of Widespread Deployment of Electric Vehicles on Power Grid....195
Akif Zia Khan, Abdul Kashif Janjua, Shayan Tariq Jan, Zeeshan Nazir Ahmed

Asymptotic Analysis of a New Low Complexity Encryption Approach for the Internet of Things, Smart Cities and Smart Grid....200
Ananth Narayan Samudrala, Rick S. Blum

CPS Compliance-Constrained AGC Optimization Model for Interconnected Power Grid....205
Wanzong Zhao, Hua Wei

Provable Security Analysis of Complex or Smart Computer Systems in the Smart Grid....210
Sheema Madhusudhanan , Sanoop Mallissery

Research on the Optimization Strategy of 220kV Power Grid Based on the Partitioning Connecting Channel....215
Yang Jianlin, Zhang Mengyao, Qiao Weidong, Huang Yichao, Fei Fei, Guo Mingxing

An Unscented Transformation Based Probabilistic Power Flow for Studies on Uncertainty Sources in AC/DC Grid....221
Sui Peng, Junjie Tang, Weizhou Wang, Fuchao Liu, Jingjing Zheng

Demand Side Management in a Smart Grid Environment....227
Gaurav Gaur, Nishtha Mehta, Rintu Khanna, Sandeep Kaur

Application of Bacteria Foraging Algorithm for MMC Based Smart Micro grid....232
Suresh Babu G V, Ganesh V, Sreedhar M

A Survey of Game Theory Approach in Smart Grid with Emphasis on Cooperative Games....237
Abdolah Loni and Fereshteh-Azadi Parand

Smart Metering Deployment Scenarios in India and Implementation Using RF Mesh Network....243
Antara Mahanta Barua, Pradyut Kumar Goswami

Research on Water Meter Reading System Based on LoRa Communication....248
Yuezhong Li, Xiaoqiang Yan, Lingyuan Zeng, Hualing Wu

Construction and Development of Intelligent City

Assessment of Maturity Models for Smart Cities Supported by Maturity Model Design Principles.....252
Pedro Torrinha, Ricardo J. Machado

A Cyber-Physical System Approach to Smart City Development 257
Ali Asghar Ghaemi

Smart City: Issues and Research Challenges in Implementation 263
Anto Merline M, Vimalathithan R

A Novel Energy Management System for Modified Zero Energy Buildings using Multi-Agent Systems.....267
Sumedha Sharma, Mukesh Singh, Surya Prakash

Analysis of Vehicle Speed Limit and Air Pollution Load for Identifying Road Conditions in India: An Empirical Study for Smart City.....272
Sanoop Mallissery, Manohara Pai M.M., Radhika M. Pai

Smart Governance: a Key Factor for Smart Cities Implementation.....277
Nuno Vasco Lopes

State-of-the-art User Interfaces for Building Operating Systems.....283
Huiwen Xu, Hartmut Schmeck

City Smart-Growth Evaluation System 293
Hao-Ning Wu, Lechuan Yin, Tianchu Zhou, Shiqi Ye

Emerging Faces of Mid-sized Cities under Smart Growth.....298
Si Lan, Ni Fang, Huanming Zhao, Shiqi Ye

Green Communication and Technology

Traffic Event Detection Framework Using Social Media 303
Salas, A., Georgakis, P., Nwagboso, C., Ammari, A. and Petalas, I.

UWB Channel Blind Estimation Method Based on Channel Shortening 308
Hualong Ma, Xiande Wang, Yunjun Lu, Lai Tian

Decentralised System Architecture for Autonomous and Cooperative M2M Application Service Provision.....
.....312
Michael Steinheimer, Ulrich Trick, Michael Steinheimer, Bogdan Ghita, Woldemar Fuhrmann