

The 5th International Conference on
Renewable Energy
Generation and Applications



26-28 February, 2018
CIT Auditorium, Male
UAE University



Conference Program

5th INTERNATIONAL CONFERENCE ON RENEWABLE ENERGY GENERATION AND APPLICATIONS, 2018

February 26-28, 2018

UAEU Al Ain, UAE

Monday, February 26

8:00	On-site registration (8:00 am-12:00 pm)		
9:30 am -9:45 am	Inauguration		
9:45 am-10:00 am	IEEE Speech <i>Dr. Issa Bastaki</i>		
10:00 am-11:00 am	KN 1: <i>Leveraging the energy transition: Opportunities for mobility, grid, and decarbonization, Dr. Elizabeth A. Kócs, P</i>		
11:00 am-11:15 am	Coffee Break		
11:15 am-12:55 pm	S1D1T1A: <i>Green Technology 1</i>	S2D1T3: <i>Bioenergy</i>	S3D1T7A: <i>Energy and Environment 1</i>
1:00 pm-2:00 pm	Lunch Break		
2:30 pm-3:50 pm	S1D1T1B: <i>Green Technology 2</i>	S1D1T7B: <i>Energy and Environment 2</i>	S2D1T2A: <i>Biofuels and Gasification 1</i>
4:00 pm-4:30 pm	Coffee Break		
4:30 pm-5:30 pm	S1D1T1C: <i>Green Technology 3</i>	S2D1T2B: <i>Biofuels and Gasification 2</i>	S3D1T7C: <i>Energy and Environment 3</i>

Tuesday, February 27

8:00	On-site registration (8:00 am-12:00 pm)		
9:00 am-10:00 am	KN 2: <i>Energy Storage for Smart Grid Applications, Dr. Said Al-Hallaj</i>		
10:30 am-11:00 am	Coffee Break		
11:00 am-12:40 pm	S1D2T1A: <i>Green Technology 1</i>	S2D2T4A: <i>Nano Environmental Technologies 1</i>	S3D2T8: <i>Energy Storage towards Sustainable Cities and Buildings</i>
1:00pm-2:00 pm	Lunch Break		
2:30 pm-3:50 pm	S1D2T1B: <i>Green Technology 2</i>	S2D2T4B: <i>Nano Environmental Technologies 2</i>	S3D2T10A: <i>Green Buildings 1</i>
4:00 pm-4:30 pm	Coffee Break		
4:30 pm-5:30 pm	S1D2T1C: <i>Green Technology 3</i>	S2D2T4C: <i>Nano Environmental Technologies 3</i>	S3D2T10B: <i>Green Buildings 2</i>

Wednesday, February 28

8:00	On-site registration (8:00 am-10:00 am)		
9:00 am-10:00 am	Coffee Break		
10:00 am-12:00 pm	S1D3T5A: <i>Sustainable Energy Policies 1</i>	S2D3T6: <i>Green Economy</i>	S3D3T9A: <i>Smart and Green Grid Technology 1</i>
1:00pm-2:00 pm	Lunch Break		
2:30 pm-3:30 pm	S1D3T5B: <i>Sustainable Energy Policies 2</i>	S3D3T9B: <i>Smart and Green Grid Technology 2</i>	

Monday, February 26

Monday, February 26, 09:30 - 10:30

KN 1: Leveraging the energy transition: Opportunities for mobility, grid, and decarbonization

Elizabeth A. Kócs, P

Room: Auditorium

Chair: Mousa Hussein

Monday, February 26, 11:15 - 12:55

S1D1T1A: Green Technology 1 Solar, Wind and Electric Vehicles Room: E1-1028 Session chairs: Razzaqul Ahshan

Wind Farm Performance Forecasting with consideration for wind speed fluctuations

Mohsen Ziaei and Sara Kargarnejad

A Low Cost Method to Convert Automotive Alternator for Wind Electricity Generation

Tuanku Hashfi, Mohd Zamri Che Wanik, Hussain Shareef and Zahi Omer

Distributed Wind Systems for Moderate Wind Speed Sites

Razzaqul Ahshan, Muhammad Shafiq, Nasser Hosseinzadeh and Abdullah Al-Badi

Analysis of the Wind Power Generation in Mongolian Central Power System

Ankhzaya Baatarbileg, Bayasgalan Dugarjav and Gae-myung Lee

High correlation models for small scale Magnus wind turbines

Gustavo Richmond-Navarro, Noel Ureña-Sandí and Giancarlo Rodríguez

S2D1T3: Bioenergy

Bioenergy

Room: E1-1036

Session chairs: Ali Abu Odeh

Numerical model estimation of Biomethane production using an anaerobic CSTR: model formulation, parameter estimation and uncertainty/sensitivity analysis

Hatem Yazidi

Analysis of Sugarcane-Ethanol As A Renewable Energy Source

Muhammad Mahmood Ali, Hafeez-ur Rehman and Adnan Afzal

Fabrication, analysis and characterization of CCTS based device using interdigitated electrodes for Bioenergy applications

Ali Abu Odeh, Yarub Al-Douri and Waleed K. Ahmed

Modeling and Optimization of Biodiesel Production from Chlorella Vulgaris in a Batch Reactor

Shahin Mokhtari and Mohammad Talaghat

Blue Laser Excitation of Electrons within the Pathway between Photosystem II and I for Growth Enhancement of Chlamydomonas Reinhardtii Algae

Sadiq Alyasiri, Wamadeva Balachandran, Donald Hooker and Pascal Craw

S3D1T7A: Energy and Environment 1
Energy and Environment
Room: E1-1038
Session chairs: Waleed Ahmed

The impacts of sustainability on society

Thiago Matheus Martins de Moraes, Lucas de Paula Santos Petri, Felipe Fernandes Jacintho, Rubens Alves Dias and José Feliciano Adami

DESIGN, CONSTRUCTION AND PERFORMANCE EVALUATION OF A TROMBE WALL POULTRY BROODING HOUSE

Ifeanyi Okonkwo

Hydro power Harvesting from Small catchments (Khosar Basin -Case Study)

Kamel Almohseen

Implementing Green solutions to Recycle UAE Domestic Waste: Aircraft Composite Materials

Ali Hilal-Alnaqbi, Waleed K. Ahmed, Dina Ayman Al Jamal, Farah Genena, Aamna Almazrouei and Lamia Almarzooqi

A review of tidal current energy resource assessment: Current status and trend

Roslynn Rosli

Monday, February 26, 14:30 - 15:50

S1D1T1B: Green Technology 2
Solar, Wind and Electric Vehicles
Room: E1-1028
Session chairs: Isam Janajreh

Contribution of large scale PV plants to electric power during winter peak times in Jeju island

Jae-hee Kim, Hyung-Joon Yang, Suk-young Ko, Ankhzaya Baatarbileg, Hoon Kwon, Seong-Bo Oh and Gae-myung Lee

A Case Study - Solar Powered Metro in UAE

Vidhya Koothupalakkal Viswambaran, Arfan Ghani, Vijay Kumar and Kainat Amjad

Modelling-assisted Solar Pond Design and Development for Masdar City Environment

Khadije El Kadi and Isam Janajreh

Regional generation characteristics of MV photovoltaic power plants in Jeju island

Sae-woong Kang, Hyeon-seong Kim, Ankhzaya Baatarbileg, June Sakong, Gae-myung Lee and Seung-beom Kim

S1D1T7B: Energy and Environment 2
Energy and Environment
Room: E1-1038
Session chairs: Bobby Mathew

Comparative study of the rheological behavior of palm shell, peanut shell and cashew shell in rotating drum

Lat Grand Ndiaye, Philippe Bernard Himbane, Ansoumane Diedhiou and [Diouma Kobor](#)

A System Dynamic Based DSS for Ecological Urban Management in Alexandria, Egypt: Urban Metabolism Approach

Mona Salem, Khalid Al-Hagla and Hany Ayad

Thermodynamic Analysis of Lithium Bromide Absorption Chiller Driven by Geothermal Energy

Mamdouh Assad, Muhammad Tawalbeh, Tareq Salameh and Amani Al-Othman

Abu Dhabi Energy Mix using PLEXOS as optimization tool
Moza Salim Al Naimi, Mohamed I Ali and Gento Mogi

S2D1T2A: Biofuels and Gasification 1

Biofuels and Gasification

Room: E1-1036

Chair: Emad Elnajjar

Characterization and Chemical Composition of UAE Date Seeds

Emad Elnajjar, Shereen Hasan, Sulaiman Al-Zuhair, Ali Hilal-Alnaqbi and Salah Al Omari

Biodiesel Production from Date Seeds via Microwave Assisted Technique

Abrar Inayat, Chaouki Ghenai, Farrukh Jamil, Alya Alobaidli, Hiba Bawazir and Noura Ali

Utilizing Recycled Prepreg Carbon Fiber and Date Pit Powder for Detoxification

Ameereh Seyedzadeh, Asel Mwafy, Waleed K. Ahmed and Ali Hilal-Alnaqbi

Thermogravimetric study of the combustion characteristics of diesel and biodiesel

Manar Almazrouei and Isam Janajreh

Monday, February 26, 16:30 - 17:30

S1D1T1C: Green Technology 3

Solar, Wind and Electric Vehicles

Room: E1-1028

Session chairs: Maamar Bettayeb

Optimal Design of Solar PV/Fuel Cell/ Diesel Generator Power System for Cruise Ship

Chaouki Ghenai, Maamar Bettayeb and Boris Brjanin

Performance of Concentrated Solar Collectors: Studying the absorber pipe outlet temperature variations

Mohammed Ziauddin, Fadi Al Naimat, Bobby Mathew, Tariq Darabseh and Emad Alhseinat

Fractional Nonlinear Synergetic Control for DC-Link Voltage Regulator of Three Phase Inverter Grid-Tied PV System

Abdelbasset Mehiri, Maamar Bettayeb, Abdul-Kadir Hamid and Aghiles Ardjal

S2D1T2B: Biofuels and Gasification 2

Room: E1-1036

Session chairs: Salah Al Omari

The Effect of Nanoparticles Addition with Biodiesel-Diesel Fuel Blend on a Diesel Engine Performance and Emission Characteristics

Ahmed I. EL-Seesy

An Investigation on the Thermal Degradation Performance of Crude Glycerol and Date Seeds Blends Using Thermogravimetric Analysis (TGA)

Salah Al Omari, Mohamed Y. E. Selim, Abdallah Ghazal, Hanaa A. E. Abdelrahim, Mahmmoud Syam and Rahma Al Najjar

S3D1T7C: Energy and Environment 3

Room: E1-1038

Session chairs: Fadi Ghaith

Important Solar Parameters in Installing Solar Cells Case study of Zanjan city in Iran

Amidedin Mousavi, Seyed Rasoul Safavi, Ali Naderloo, Hadi Shahmohammadi, Pezhman Tashakkori and Rasoul Abdollahi Shamipour

Performance and Feasibility of Using An Integrated Solar Powered Desalination System in United Arab Emirates

Fadi Ghaith and Ilaam Mehmood

Power-dependent Photoluminescence in Strained $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{GaN}$ Multiple-Quantum Wells: Simulations of Alloying and Interface Effects

Nacir Tit

Tuesday, February 27

Tuesday, February 27, 09:00 - 10:00

KN 2: Energy Storage for Smart Grid Applications

Said Al-Hallaj, PhD

Room: Auditorium

Chair: Emad Elnajjar

Tuesday, February 27, 11:00 - 12:40

S1D2T1A: Green Technology 1 Solar, Wind and Electric Vehicles

Room: E1-1028

Session chairs: Addy Wahyudie

Nonlinear Synergetic Control Approach for dc-link Voltage Regulator of Wind Turbine DFIG Connected to the Grid

Aghiles Ardjal, Maamar Bettayeb, Rachid Mansouri and Abdelbasset Mehiri

Maximising Absorbed Energy using Neuro-Adaptive Controller for Heaving Point Absorbers

Muhammad Saleheen Aftab and Addy Wahyudie

On Enhancing Power Conversion for Heaving Point Absorbers with Intelligent Neuro-Adaptive Controller

Muhammad Saleheen Aftab and Addy Wahyudie

Control Force Limitation in Wave Energy Converter using Neuro-Adaptive Hierarchical Control Scheme

Muhammad Saleheen Aftab and Addy Wahyudie

Stability Analysis of Second-Generation High-Temperature Superconductor According to Stabilizer Thickness

Huu Luong Quach, Ji Hyung Kim, Chang Ju Hyeon and Ho Min Kim

S2D2T4A: Nano Environmental Technologies 1

Room: E1-1036

Session chairs: M-Ali AL-Akhras

Combined Electrochemical/Chemical Bath Deposited Metal Selenide Nano-film Electrodes with High Photo-electrochemical Characteristics

Hikmat Hilal, D. Sc., Ahed Zyoud, Khaled Murtada, Nour AbdulRahman, Mohammed Helal, Naser Qamhieh and Abdulrazik Hajimohideen

Comparison between TiO₂ and ZnO catalysts in photo-degrading aqueous paracetamol contaminant with solar simulated light

Ahed Zyoud

Investigation of optical and structural properties of Cu₂CdSnS₄ quaternary alloy nanostructures deposited on GaN for solar cell application

Ali Abu Odeh, Yarub Al-Douri and Waleed K. Ahmed

Tuning of the optical band-gap of rare earth doped BiFeO₃ submicron particles for solar cell applications

Chiranjib Nayek, M-Ali AL-Akhras and Ihab Obaidat

Linear Angstrom model applied to weather data collected for the city of Sharjah

AbdulHai Alami, Zhang Di, Muhammad Tawalbeh, Kamalia Aokal, Lamiaa Elsherbiny, Zena Yasser and Areej Abdelghani

S3D2T8: Energy Storage towards Sustainable Cities and Buildings

Room: E1-1038

Session chairs: Fadi Al Naimat

Controlled Active Thermal Storage in Smart PCM Walls for Energy Independent Building Applications

Richard Wegmueller, Gabriel Magnin, Jacques Robadey and Elena-Lavinia Niederhäuser

Optimized-GA Fuzzy Logic-based Self-tuning PID Controller in Multi-Source Multi-Area Power Systems for Load Frequency Control

Davar Mirabbasi

Effect of the PV Position and Orientation on Energy Consumption in a Facility

Rania Elghamry

The Effect of Incorporating Microencapsulated Phase Change Materials (PCMs) in Brick Sandwiched Walls in Reducing the Thermal Insulation Thickness for Hot Climates

Abdallah Ghazal, Fadi Al Naimat, Bobby Mathew and Yousef Zurigat

Enhancement of Concentrated photovoltaic cooling using Phase change material by adding a bulk over regular configuration

Ramy Rabie, Hamdy Hassan, Shinichi Ookawara and Mahmoud Ahmed

Tuesday, February 27, 14:30 - 15:50

S1D2T1B: Green Technology 2
Solar, Wind and Electric Vehicles
Room: E1-1028
Session chairs: Addy Wahyudie

Study on EV charging infrastructure in Jeju island
Hyung-Joon Yang, Jae-won Jung, Ankhzaya Baatarbileg, Kyu-ho Park, Gae-myung Lee and Tae-hyung Kim

Effects of Electricity pricing system on EV charging in Jeju island
Jae-won Jung, Ankhzaya Baatarbileg, Gae-myung Lee, Seong-Bo Oh and Hyuk-joo Ko

Distributed Maximum Power Point Tracking (MPPT) for Photovoltaic Systems in Mismatching Condition
Fahad Althobaiti and Dhafer Al-Makhles

A Plasmonic Nanoantenna Array for Solar Energy Applications
Mousa Hussein, Syed Jehangir, Tri B. Susilo and Addy Wahyudie

S2D2T4B: Nano Environmental Technologies 2
Room: E1-1036
Session chairs: AbdulHai Alami

Efficiency and high-temperature response of dye-sensitized solar cells using natural dyes extracted from Calotropis
Zhang Di, AbdulHai Alami, Muhammad Tawalbeh, Kamilia Aokal, Alya Alhammadi, Aya Taieb and Reinad Abu Rabah

Investigating the effect of nanofluid on optimal design of Solar Flat Plate Collector
Hassan Hajabdollahi

Graphene Oxide - Nafion composite membrane for effective methanol crossover reduction in passive direct methanol fuel cells
Muhammad Tawalbeh, Amani Al-Othman and Mamdouh Assad

Thermal Efficiency of a Direct Absorption Solar Collector Using Magnetic Nanofluids
Sawsan Dagher, Ali Hilal-Alnaqbi, Nacir Tit, Saud Khashan, Fadi Al Naimat and Bobby Mathew

Tuesday, February 27, 14:30 - 15:30

S3D2T10A: Green Buildings 1
Room: E1-1038
Session chairs: Mohammad Hamdan

Green Building Using Nano Materials for High Performance Cement Mortar Composite
Wail Al-Rifaie, Omar Mahdi and Waleed K. Ahmed

Tapping to Geothermal Energy through a High Performance Earth-to-Water Heat Exchanger Design
Mohammad O. Hamdan

Evaluation of the daylighting performance in UAE traditional buildings turned into museums
Khaled Al-Sallal and Amira AbouElhamd

Analysis of Energy Reduction through HVAC Commissioning: A Case Study of a LEED Certified New Building
Young Ki Kim and Hasim Altan

Tuesday, February 27, 16:30 - 17:30

S1D2T1C: Green Technology 3
Solar, Wind and Electric Vehicles
Room: E1-1028
Session chairs: S Sherif

Design of A Laboratory Scale Linear Hydraulic Wave Energy Converter
Addy Wahyudie and Tri B. Susilo
Design of A 100 W Mini Permanent Magnet Linear Generator for Wave Energy Converter System
Addy Wahyudie, Tri B. Susilo and Syed Jehangir

Tuesday, February 27, 16:30 - 17:50

S2D2T4C: Nano Environmental Technologies 3
Room: E1-1036
Session chairs: Nacir Tit

Experimental and numerical study on heat transfer enhancement of concentric tube heat exchanger using water based nanofluids
Tareq Salameh, Muhammad Tawalbeh and Mamdouh Assad
Selective Adsorption of H₂ on N-doped ZnO Nano-ribbons: First-Principle Analysis
Wael Othman, Alaa Shaheen, Younes Aitladi, Sultan Atatri, Yahya Abdelhadi, Golibjon Berdiyrov and Nacir Tit

Tuesday, February 27, 16:30 - 17:30

S3D2T10B: Green Buildings 2
Room: E1-1038
Session chairs: Hamza Mukhtar

Retrofit Evaluation of a Residential Building in UAE: Energy Efficiency and Renewable Energy
Boshra Akhozheya, Rahma Abdelghani, Kheira Anissa Tabet Aoul and Monaya Syam
Dynamic Performance of Solar Powered Vapor Absorption Cooling System in Dhahran - Saudi Arabia
Hamza Mukhtar and Syed Said
Energy Storage Technologies and Projections of Grid Parity: A Case Study of Singapore
Dina Azhgaliyeva

Wednesday, February 28

Wednesday, February 28, 10:00 - 12:00

S1D3T5A: Sustainable Energy Policies 1

Room: E1-1028

Session chairs: Adeleh Ashraf hesari

Modeling of solar thermal cooling system in Hatta-Dubai

Mohammad Almahmood and Ayman Odeh

Combined heat and power economic dispatch problem using Three different evolutionary algorithms

Adeleh Ashraf Hesari

A numerical study on the effect of the heat sink as condenser on the performance of passive solar still

Ayman Refat Abd Elbar, Hamdy Hassan and Shinichi Ookawara

Clean Energy for Future Energy Policy in Turkey

Ibrahim Yuksel, Hasan Arman and Ibrahim Halil Demirel

Correlated Capacity Factor Strategy for Yield Maximization of Wind Turbine Energy

Ayman Al-Quraan

Differences in Locational Marginal Prices: Deterministic vs. Stochastic Market Formulations

Yousef Al-Abdullah and Mostafa Sahraei-ardakani

S2D3T6: Green Economy

Room: E1-1036

Session chairs: Issah Alhamad

An overview of people's behavior towards water saving policies at Abu Dhabi Emirate

Issah M. Alhamad

Renewable Energy Management: Technical and Economic Evaluation of an Optimized Photovoltaic System

Hamed Allaham, Abdul-Kadir Hamid and Ali Cheaitou

Optimizing the production of ammonia as an energy carrier in the UAE

Ola Osman and Sgouris Sgouridis

The Feasibility of Applying Effluent Taxation in Abu Dhabi Residential Sector

Issah M. Alhamad

S3D3T9A: Smart and Green Grid Technology 1

Room: E1-1038

Session chairs: Hafiz Ashraf

Re-energizing of single phase by Protective scheme of parallel bi-Transmission Lines Using Fuzzy Logic Technique

Hafiz Ashraf

Operation of DC Series Connected Offshore Wind Farm by Using Tap Changing Transformer with MMC-HVDC

Gi Hoon Kim, Mink Hyeok Kang, Jin Hong Ahn, Sang Heon Chae and [Eel-Hwan Kim](#)

Future Load Profiles Under Scenarios of Increasing Renewable Generation and Electric Transport

Michael Allison, Emmanuel Akakabota and Gobind Pillai

A study into the efficiency of embedded solar photovoltaic cells in double roman shaped roof tiles

Raul Ferreira, Andre Nel and Nickey Janse van Rensburg

Investigation on the Performance of PV-UPQC under distorted current and voltage conditions

Santanu Kumar Dash and Pravat Ray

Performance of Virtual Synchronous Machine in Autonomous Mode of Operation

Tumati Vijay Kumar, Vinu Thomas, Kumaravel S and Ashok S

Wednesday, February 28, 14:30 - 15:30

S1D3T5B: Sustainable Energy Policies 2

Room: E1-1028

Session chairs: Hasan Arman

Predictive Energy Management in large-Scale Grid Connected PV-Batteries System

Sumayya Almazrouei, Abdul-Kadir Hamid and Mohammad Shamsuzzaman

Water Resources Planning Hydropower for Sustainable and Green Energy in Turkey

Ibrahim Yuksel, Hasan Arman and Ibrahim Halil Demirel

S3D3T9B: Smart and Green Grid Technology 2

Room: E1-1038

Session chairs: Falah Awwad

parameter optimization of simple PEMFC model using Backtracking Search Algorithm

Saad Khan, Muhammad Awais Rafiq, Hussain Shareef and Muhammad Sultan

Review of Real-Time Load of H.A Fibers@ Grid with Distributed Fuel Cells Renewable Generation Unit

Muhammad Sheikh, Muhammad Ramzan, Saad Khan and Imad Barhumi

A DQ Droop Control Strategy for Fixed Frequency VSI-Based AC Microgrids

Mohamed Toub, Wayne Weaver, Rush Robinett, Mohamed Maaroufi and Ghassane Aniba