

2025 IEEE Seventh International Conference on DC Microgrids (ICDCM 2025)

**Tallinn, Estonia
4-6 June 2025**



**IEEE Catalog Number: CFP25CDF-POD
ISBN: 979-8-3315-1275-0**

**Copyright © 2025 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:	CFP25CDF-POD
ISBN (Print-On-Demand):	979-8-3315-1275-0
ISBN (Online):	979-8-3315-1274-3

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

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Resilient Control Strategy for DC Microgrid Clusters with Bidirectional Power Flow Under Cyber Attacks.....	1
<i>Dat Thanh Tran, Hieu Xuan Nguyen, Min Kang, Kyeong-Hwa Kim, Myungbok Kim, Kwak Bongwoo</i>	
Rapid State-Of-Power Estimation of Lithium-Ion Batteries in DC Microgrids	6
<i>Leevi Lignell, Minh Tran, Tomi Roinila</i>	
Distributed MPC for Cost-Optimal Control of FC-Battery Shipboard Microgrids	12
<i>Timon Kopka, Andrea Coraddu, Henk Polinder</i>	
Demonstration of a 700 V-18 kW Low Voltage Direct Current Microgrid.....	18
<i>Kenan Askan, Michael Bartonek, Ronald Niehoff, Hartwig Stammberger</i>	
Multi-Objective Online Optimization Technique of a DC Microgrid	26
<i>Elie Hleihel, Maurice Fadel, Hadi Y. Kanaan</i>	
Current Shift Effect of Dead-Time Switching Dynamics for Three-Phase Dual Active Bridge Converter.....	33
<i>Ryo Wakabayashi, Tohru Kohno</i>	
Enhancing Dynamic Performance of Asymmetrical CLLC Resonant Converters by Optimal Trajectory Control and First Harmonic Approximation	38
<i>Xiaotian Yang, Zhuoyun Liu, Bernd Wunder, Vincent Lorentz, Martin Maerz</i>	
Semiconductor-Based Fault Current Interruption Technology in DC Distribution Systems	46
<i>Dong Jin Yun, Seong Eon Kim, Cheol Jun Shin, Hee Su Kang, Jae Seop Ryu, Chae Yoon Bae</i>	
Analysis of Fault Simulation in LVDC Distribution System and Application Effects of Semiconductor Circuit Breaker Using PSCAD/EMTDC	51
<i>Hee Su Kang, Dong-Jin Yun, Seong-Eon Kim, Chul-Jun Shin, Da-Eun Kim, Jae-Seop Ryu, Chae-Yoon Bae</i>	
SAC-Based Distributed Optimal Control of Generation Cost in DC Microgrids.....	56
<i>Mohsen Salimi Khanghah, Fariba Moghaddam, Amirabolfazl Suratgar, Mohammad Bagher Menhaj</i>	
Feasibility Analysis of Protection Diodes for Breakerless Dc Grids	63
<i>Jan Mathé, Raphael Mencher, Rik W. De Doncker</i>	
Methodical Identification and Evaluation of Critical Failures in DC Hybrid Switchgear	68
<i>Matthias Streck, Johannes Gehring, Arno Bernhardt, Bernhard Fauth, Sebastian Gerke, Christian Hoyer, Julian Kaiser, Ann-Catrin Uhr-Müller, Christoph Oehler, Frank Berger, Vincent Lorentz, Martin März</i>	
Exploring the Features of Power Electronic Converters for Hybrid AC-DC Microgrids.....	74
<i>Jules Mace, Drazen Dujic</i>	
Optimal Distributed SoH Balancing of Second-Life Battery Energy Storage Systems in a Dc Microgrid.....	81
<i>Enrique Nunes, Gaowen Liang, Ezequiel Rodriguez, Hein Wai Yan, Glen G. Farivar, Petr Vorobev, Josep Pou</i>	

Active Clamping Modeling for Electronic Fuses in the Vehicular Low-Voltage Power Supply	87
<i>Bastian Eisenmann, Martin Baumann, Christoph Mayer, Marcelo Lobo Heldwein</i>	
Design of a Model Predictive Controller for the Dual-Active Bridge Converter	93
<i>Marco Guerreiro, Wesley Becker, Pedro Dos Santos, Steven Liu</i>	
Cloud-Based Energy Distribution Algorithm for DC-Microgrids Incorporating Renewable Sources and Electric Vehicle Support	99
<i>Martin Stoiber, Manuel Freiberger, Lucas Winder</i>	
A DC Microgrid Testbed: Concept to Real World Applications	105
<i>Indra Bhogaraju, Muhammad Anees, Mehnaz Khan, James Stoupis, Srdjan Lukic</i>	
Variable DC-Link Voltage for an LLC Converter with Wide Input and Output Voltage Range	111
<i>Joao Rocha, Saghir Amin, Muhammad Awais, Goncalo Rego, Joao L. Afonso, Vitor Monteiro</i>	
Real-Time Power Management of Lithium-Ion Batteries in DC Microgrids	117
<i>Minh Tran, Leevi Lignell, Tomi Roinila</i>	
Fuse Arcing Model for Low Voltage Direct Current Distribution Grid	123
<i>Reymond-Laruina Frédéric, Arellano Alexis, Hadbi Djamel</i>	
An Active Balancer of Currents for Bipolar DC Power Grids	128
<i>Vitor Monteiro, Sergio Coelho, Saghir Amin, Muhammad Awais, Pedro Brito, Joao L. Afonso</i>	
Impedance Measurement in DC-Grids Using Central Excitation and Distributed Measurement	134
<i>Raffael Schwanninger, Moritz Bosch, Bernd Wunder, Martin Maerz</i>	
A Simplified Modular Multilevel Step-Down DC/DC Converter for Medium to High-Voltage Applications	140
<i>Georgios I. Orfanoudakis, Georgios Kotoulas, Evangelos Pompodakis, Alon Kuperman</i>	
Development of the Functional Mock-Up Unit of a Solid-State Circuit Breaker for Digital Twin Applications	146
<i>F. D'Agostino, F. Silvestro, F. Sivori, P. Purgat, A. Villamil Prieto, E. Ragaini</i>	
A Modified DC-Link Structure for PWM Motor Drives to Eliminate Common-Mode Leakage and Bearing Currents	151
<i>Georgios I. Orfanoudakis, Evangelos Pompodakis, Alon Kuperman</i>	
Enhanced Thermal Management Strategies for SiC MOSFETs in EV Fast Charging Systems Using Cold Plate and Copper Inlay Solution	157
<i>Muhammad Awais, Saghir Amin, Francisco P. Brito, Joao L. Afonso, Nuno Costa, Vitor Monteiro</i>	
Multi-DC-Bus Power Conversion Stage for Integration of PV Systems in the MV Network	163
<i>Javed Jamshed, Rosa Anna Mastromauro</i>	
Impact of Fixed Vs. Variable DC-Link Voltages on Maximizing Efficiency of EVs Fast-Charging Systems	170
<i>Saghir Amin, Muhammad Awais, Joao Rocha, Joao L. Afonso, Nuno Costa, Vitor Monteiro</i>	
Low Cost Arc Preventer for Converting AC Devices for DC Supply	176
<i>Raffael Schwanninger, Kilian Drexler, Raphaël Rohmer, Carl Justus Renner, Vincent Lorentz, Martin Maerz</i>	

Active Redundancy in Fault Tolerance: A Modular Switch Level Solution with Synchronous Switching.....	182
<i>Aditya Shirodkar, Satish Naik Banavath, Andrii Chub, Riccardo Mandrioli, Mattia Ricco</i>	
Three-Level Gate Driver for Latching Current Limiter in DC Microgrid Protection.....	188
<i>Alejandro Latorre, Thiago Batista Soeiro, Rinze Geertsma, Henk Polinder</i>	
Dc-Side Interaction Studies for Control and Protection in an Mvdc System	193
<i>Jaqueline Cabañas Ramos, Ilka Jahn, Ferdinanda Ponci, Antonello Monti</i>	
Practical Implementation of a Public LVDC Microgrid: Challenges and Experiences	198
<i>Ward Ysebie, Hakim Azaïoud, Brecht Caers, Jan Desmet</i>	
Fault Detection and Mitigation of DC/DC Converters with Semiconductor-Based Isolation for DC-EVSEs	204
<i>Kilian Drexler, Yan Zhou, Bernd Wunder, Vincent Lorentz, Martin März</i>	
Adaptive Grid Forming Control of STATCOM to Improve DC Dynamics in Hybrid AC-DC Microgrid.....	210
<i>Hikmat Basnet, Henrik Alenius, Tomi Roinila</i>	
Fault Ride-Through Modulation for Forced Soft-Switched Three-Phase Dual-Active Bridge Converter.....	216
<i>Raphael Mencher, Jan Mathé, Rik W. De Doncker</i>	
Multilevel Multiport Converter for Grid-Tied Dc Microgrids with Integrated PV and Storage.....	222
<i>Marzio Barresi, Davide De Simone, Edoardo Ferri, Luigi Piegari</i>	
Performance Evaluation of Multiport Y-Converters Using Renewable Source Mission Profile	229
<i>Khaled A. A. Mohammed, Ahmed Y. Farag, Davide Biadene, Tommaso Caldognetto, Paolo Mattavelli</i>	
Selectivity in DC-Microgrids: The Reaction Time Gap	235
<i>Johannes Gehring, Raffael Schwanninger, Kilian Drexler, Bernd Wunder, Vincent Lorentz, Martin März</i>	
Experimental Demonstrator of Full Bridge Modular Multilevel Converter for DC Grid Applications.....	241
<i>Miad Ahmadi, Hitesh Dialani, Mladen Gagic, Pavol Bauer, Aditya Shekhar</i>	
LVDC Solution for Building: In-Depth Analysis on Protection Schemes and Selectivity Principles	247
<i>David Corbet, Thi-Thu-Ha Pham</i>	
Nonlinear Control of the Four-Wire Y-Converter for Grid Integration of 400V DC Microgrids	253
<i>Mohammed B. Debbat, Ahmed Y. Farag, Paolo Mattavelli, Jose Luis Dominguez-García</i>	
Transient Behavior of Power-Flow Control in Meshed MVDC Cable Grids.....	259
<i>Sven Marquardt, Thomas Brückner</i>	
Technical-Economic Assessment of a Dc Microgrid for Electroplating Industry	266
<i>S. Lilla, A. A. Tavagnutti, D. Bosich, F. Napolitano, A. Prevedi, F. Tossani, G. Sulligoi, C. A. Nucci</i>	
Impact of DC Stray Currents - Induced Corrosion on Reinforced Concrete Structures and Mitigation Strategies	271
<i>Bertrand Du Peloux, Isabelle Gal, Elie Sassine, Stéphane Laurens, Jiri Stepanek, Vincent Guenego</i>	

Open-Loop Control Stability of Buck Converters with Constant Power Loads Considering Parasitic Parameters Effects	278
<i>Yeji Jiang, Li Lisa Qi, Jinzhuo Bai, Xuemeng Zhang, Zhiguo Hao</i>	
Control and Power Management of a Battery-Supercapacitor-PV-Wind Based Grid-Independent DC-Microgrid.....	283
<i>Prashant Singh, Pankaj Saha, Ari Hentunen</i>	
Novel Concept of Universal AC/DC-DC Onboard Battery Charger for Electric Vehicles	289
<i>Parham Mohseni, Oleksandr Husev, Dmitri Vinnikov, Matthias Kasper, Gerald Deboy</i>	
Capacitively Isolated Triple-Active-Bridge (CITAB) DC-DC Converter for Bipolar DC Nanogrid	295
<i>Emmanuel S. Oluwasogo, Jens P. Konrath, Sandhya Burri, Ignatius K. Okakwu</i>	
Simplified Short Circuit Current Simulation in LVDC Microgrids.....	301
<i>Laura Bayerdörffer, Timo Heurich, Stephan Rupp, Sebastian Brüske, Marius Langwasser</i>	
A Conceptual Design of Multibus Architectures for Smart Homes in Residential DC Microgrids Powered by Solid-State Transformers	307
<i>Sergio Coelho, Joao Rocha, Manuel J. Sepulveda, Vitor Monteiro, Joao L. Afonso</i>	
HVDC-MVDC Converter with a Three-Phase Semi-Coaxial Medium-Frequency Transformer	313
<i>Amandus Bach, Rik W. De Doncker</i>	
Modified Boost Converter Topology for Enhanced Converter-Based Dc Protection.....	319
<i>Moein Ghadrhan, Honeymol Mathew, Ömer Ekin, Giovanni De Carne</i>	
Impact of System Parameters on Selectivity Requirements for MVDC Grids.....	324
<i>Amila Kaharevic, Ferdinanda Ponci, Antonello Monti</i>	
Consequences of Transformer DC Bias in AC Earthed Low Voltage DC Grids	329
<i>S. Ravyts, L. Van Der Veken, T. De Wispelaere, L. Lasne, M. Kleemann</i>	
Availability of Multi-Infeed Industrial LVDC Grids with Multiple Zones Considering Timely Protection	336
<i>Glenn Emmers, Tom Van Acker, Johan Driesen</i>	
GaN-Based Neutral-Point-Clamped Multi-Port DC-DC Converter	342
<i>Ke Xu, Jesse Echeverry, Laurens Mackay, Hani Vahedi</i>	
Controller for Grid-Current Regulation and RMS Current Reduction of a Matrix-Type Converter	348
<i>Matteo Vazzoler, Davide Biadene, Paolo Mattavelli, Tommaso Caldognetto</i>	
A Bipolar 350/700V DC Grid for Public Lighting - A Case Study.....	354
<i>Lukas Irazusta Gorostidi, Khawaja Samad Shah, Hidde L. Moens, Peter Broekhuijsen, Laurens Mackay</i>	
Software Tool to Support the Planning and Design of Industrial Direct Current Microgrids: A Review.....	358
<i>Janosch Christian Hecker, Ismail Mesutoglu, Alexander Sauer</i>	
Building-Level DC-Aware Energy Management System: Experimental Realization and Outcomes	364
<i>Hossein Nourollahi Hokmabad, Oleksandr Husev, Pedro P. Vergara, Jarek Kurnitski, Dmitri Vinnikov, Juri Belikov</i>	

Conducted EMI Emission Evaluation Considerations for Lab Test Site and in-Situ Measurements of DC Microgrid Supplied Power Converters	370
<i>Lauri Kütt, Kamran Daniel, Hetal Sharma, Martin Parker, Andrii Chub</i>	
Novel Dual-Purpose Cost-Effective Forward-Based Micro-Converter	375
<i>Hossein Afshari, Oleksandr Husev, Oleksandr Matiushkin, Dmitri Vinnikov</i>	
MPC Based Power Management for Off-Grid Photovoltaic Hybrid Inverters Using Li-Ion Batteries and Supercapacitors.....	380
<i>Ezequiel Gonschorowski, Rafael Cardoso, Edivan Laercio Carvalho, Carlos Marcelo De Oliveira Stein, Emerson Giovani Carati, Gustavo Weber Denardin, Jean Patric Da Costa</i>	
Data-Driven Control of DC-DC Boost Converters Interfaced with Constant Power Loads.....	386
<i>Behdad Moradi, Kamran Moradi, Pavol Bauer, Qobad Shafiee</i>	
Wide Voltage Gain Current-Fed Isolated Buck-Boost Series-Resonant Dc-Dc Converter with Active Clamp for Dc Microgrid Applications	392
<i>Salman Khan, Andrii Chub, Dmitri Vinnikov, Matthias Kasper, Gerald Deboy, Sachin Chauhan</i>	
Ensuring Stability in DC Microgrids Through Application of the Passivity Principle	397
<i>Vladan Ž. Lazarevic, Mario Schweizer, Dejan Pejovski, Antonello Antoniazzi</i>	
A Topology Morphing Partial Power Converter with Variable Turns Ratio for Integration of on-Board Battery Chargers with DC Buildings	403
<i>Niwtan Gabriel Feliciani Dos Santos, Andrii Chub, Mário Lúcio Da Silva Martins</i>	
Current-Derivative-Based Fault Detection in Converter-Interfaced LVDC Grids: A Different Approach	408
<i>George Govaerts, Johan Driesen, Wilmar Martinez</i>	
DC-DC Converter with Buck-Boost Characteristics and High Voltage Gain Based on the Differential Concept	415
<i>V. Fernão Pires, Daniel Foito, Armando Cordeiro, Joaquim Monteiro, Sónia Pinto, J. Fernando Silva</i>	
A Single-Switch DC-DC NonIsolated Buck-Boost Converter with Wide Voltage Gain for Bipolar DC Microgrids.....	420
<i>V. Fernão Pires, Daniel Foito, Armando Cordeiro, Pedro Pereira, João Martins</i>	
Equivalent Circuit for LVDC Grid Fault Analysis: Numerical Parameters Evaluation.....	426
<i>Julian Valbuena Godoy, Simone Negri, Francesca Oliva, Dejan Pejovski, Antonello Antoniazzi, Roberto Faranda</i>	
Equivalent Circuit for LVDC Grid Fault Analysis: Physical Parameters Evaluation	433
<i>Julian Valbuena Godoy, Simone Negri, Francesca Oliva, Dejan Pejovski, Antonello Antoniazzi, Roberto Faranda</i>	
Battery-Integrated Dual-Winding Magnetic Energy Harvester Supplying a Constant Power DC Load.....	440
<i>Asaf Levhar, Alex Belenky, Georgios I. Orfanoudakis, Moshe Sitbon, Riccardo Mandrioli, Alon Kuperman</i>	
Three-Phase Three-Level Dual Active Bridge for EV Charging: Wide Output Voltage Range with Light-Load Soft-Switching Morphing.....	445
<i>Riccardo Mandrioli, Francesca Grazian, Lohith Kumar Pittala, Mattia Ricco, George Papafotiou</i>	

Performance Analysis of Partial Power Converter in DC Microgrid with Active Front-End Converter.....	451
<i>Neelesh Yadav, Sayeed Hasan, Ilya Galkin, Andrii Chub</i>	
Control of Multiport Partial Power Converters for PV-Battery Systems Integration in DC Microgrids	456
<i>Neelesh Yadav, Tuhin Mitra, Ahmad Makkieh, Andrii Chub</i>	
Online Embedded Analytics for Energy Time Series Pre-Processing in LVDC Microgrids	462
<i>Grigore Stamatescu, Radu Plamanescu, Mihaela Albu</i>	
The Smart2DC Microgrid Laboratory at Karlsruhe Institute of Technology.....	466
<i>Ömer Ekin, Friedrich Wiegel, Luigi Spatafora, Richard Jumar, Moein Ghadrhan, Simon Waczowicz, Giovanni De Carne, Veit Hagemeyer</i>	
Application and Control of Bidirectional T-Type Converter in Hybrid Bipolar AC/DC Microgrid.....	472
<i>Moria Sassonker Elkayam, Dmitri Vinnikov</i>	
Energy Management Implementation Approach for Droop-Controlled Residential DC Nanogrids	477
<i>Sayeed Hasan, Andrii Chub, Neelesh Yadav, Andrei Blinov, Jarek Kurnitski, Dmitri Vinnikov</i>	
Configurable Solid State Protection Devices for Residential DC Microgrids.....	482
<i>Tanel Jalakas, Siim-Erik Viiding</i>	
Active Power Sharing Control in Asymmetrical Bidirectional DC/DC for Smart Transformers	487
<i>Lohith Kumar Pittala, Mattia Ricco, Andrii Chub, Moshe Sitbon, Alon Kuperman, Riccardo Mandrioli</i>	
Enhancing Stability and Control of HESS in DC Microgrid Feeding CPLS: An Optimized Terminal Sliding Mode Approach.....	492
<i>Aqeel Ur Rahman, Filippo Pellitteri, Nicola Campagna, A. O. Di Tommaso, Rosario Miceli</i>	
Zone Protection in Closed DC Bus and Ring Systems.....	498
<i>Peter Van Den Berg, Anju Upadhyay, Andreas Stöckli</i>	
Identifying the Potential of the Heat Generation of the Power Supply for a PEM Electrolyzer Plant in the Megawatt Range.....	503
<i>Malte Pfennig, Barbara Schiffer, Tanja Clees</i>	
Adversarial Learning-Based Cybersecurity Framework for DC Microgrids.....	509
<i>Yihao Wan, Qianwen Xu, Tomislav Dragicevic</i>	
Feasibility Study of Snow Removal from PV Module Using Universal Power Electronic Interface.....	515
<i>Sachin Chauhan, Andrii Chub, Sayeed Hasan, Arthur Lavrov, Jarek Kurnitski, Dmitri Vinnikov</i>	
Dynamic Droop Voltage Control in Zonal DC Microgrids Supplying High-Power Pulsed Loads.....	520
<i>Andrea Alessia Tavagnutti, Andrea Vicenzutti, Daniele Bosich, Robert Cuzner, Giorgio Sulligoi</i>	
Multi-Step Ahead Short-Term Residential DC Load Forecasting: A Comparative Study of Ngboost-Based Algorithms	525
<i>Noman Shabbir, Oleksandr Husev, Hossein Nourollahi Hokmabad, Kamran Daniel, Muhammad Jawad, Joao Martins</i>	
Active Front-End DC Grid-Forming Converter Design with Power Balancing Capability	531
<i>Ievgen Verbytskyi, Andrei Blinov, Andrii Chub, Dmitri Vinnikov</i>	

Analysis of a Reconfigurable Non-Isolated DC-DC Converter for DC Microgrid Applications	537
<i>Vinod Kumar Yadav, Andrii Chub</i>	
Modeling a Hybrid Hydrogen Microgrid in a Novel Multiphysical Energy System Simulator – MEgy.....	543
<i>Michael Bareev-Rudy, Malte Pfennig, Barbara Schiffer, Steffen Schedler, Gerd Steinebach, Tanja Clees</i>	
Universal Interlinking Converter for Prosumer DC Buildings: Operation Under Normal and Abnormal AC Grid Conditions.....	549
<i>Edivan Laercio Carvalho, Riccardo Mandrioli, Lohith K. Pittala, Isabella Bianchini, Andrei Blinov, Andrii Chub, Dmitri Vinnikov</i>	
Universal Interlinking Converter for Prosumer DC Buildings: Operation with Different DC Grid Types	554
<i>Edivan Laercio Carvalho, Riccardo Mandrioli, Lohith Kumar Pittala, Andrei Blinov, Andrii Chub, Dmitri Vinnikov</i>	
Performance Analysis of Si-Sido Boost-Buckboost Converter Under Unbalanced Output Scenarios Using a Continuous Switching Method.....	559
<i>Babak Rooholahi, Hans-Günter Eckel</i>	
Cycle-Skipping Technique Based on Sigma-Delta Modulation in Series Resonant DC Transformer.....	565
<i>Lohith Kumar Pittala, Andrii Chub, Vadim Sidorov, Salman Khan, Mattia Ricco, Riccardo Mandrioli</i>	
Bidirectional Ćuk DC-DC Voltage-Doubler Converter in Discontinuous Conduction Mode	570
<i>Mateus Nava Mezaroba, Eduardo Valmir De Souza, Marcelo Lobo Heldwein, Telles Brunelli Lazzarin</i>	
Supercapacitor-Based Arc Reduction Technique for DC Circuit Breakers	576
<i>Chamara Dassanayake, Nihal Kularatna, Alistair Steyn-Ross, Nicoloy Gurusinghe, Tarek Lamara, Claudio Tricarico</i>	
Remote Data Transfer and Comparative Performance Through PyBaMM and Mathematical Techniques in Battery Applications.....	581
<i>Rolando Antonio Gilbert Zequera, Diana Belolipetskaja, Anton Rassölkin</i>	
HIL Replication of DC-Based Hybrid Microgrids	587
<i>Dominique Roggo, Evan Schucan, Hugo Huerta, Georgy Tsvetkov</i>	
Why and How Direct Current Power Networks Will Dominate Global Electricity Infrastructure.....	594
<i>Rajendra Singh, Griddaluru Venkata Yagna, Satish Naik Banavath, Ram Adapa, Ibrahim Ndiaye, Zhenyu Huang</i>	

Author Index