

The *Ninth* IASTED International Conference on  
**Power and Energy Systems**  
~ PES 2007 ~

Clearwater, Florida, USA  
January 3 - 5, 2007

**FINAL CONFERENCE PROGRAM**



**LOCATION**

**Sheraton Sand Key Resort Clearwater Beach**  
**1160 Gulf Boulevard**  
**Clearwater Beach, FL**  
**33767-2799**  
**Tel: (727) 595-1611 Fax: (727) 596-8488**

# **Power and Energy Systems**

## **~ PES 2007 ~**

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**Mr. Jeffrey J. Lyash** - President and Chief Executive Officer of Progress  
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Introduction: **Dr. Sunil Saigal**, Dean of Engineering, University of South  
Florida, USA

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**Prof. Ewald F. Fuchs** - University of Colorado, USA

**Prof. S. Fred Singer** - Science & Environmental Policy Project, USA

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**A. Wong** – Deakin University, Australia  
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**Z. Zabar** – Polytechnic University, USA  
**A. Zahedi** – Monash University, Australia  
**A. Zobia** – Cairo University, Egypt

## PROGRAM OVERVIEW

### Wednesday, January 3, 2007

- 07:00 – Registration  
08:30 (*Lobby II*)
- 10:00 – Coffee Break  
10:30 (*Lobby II*)
- 13:30 – Welcome Address  
14:00 (*Island 2 Room*)
- 14:00 Session 1 – Power System Planning, Investment, Real-Time Management, and Operations  
(*Island 2 Room*)
- Session 2 – Infrastructure, Reliability, and Weather Effects  
(*Gulf Room*)
- Session 3 – Alternate Energy Developments and Sustainability using Biomass, Solar, and Others  
(*Palm Room*)
- 15:00 – Coffee Break  
15:30 (*Lobby II*)
- 15:30 Sessions 1, 2, and 3 Continued

### Thursday, January 4, 2007

- 09:30 – Coffee Break  
10:00 (*Lobby II*)
- 10:00 – Keynote Address –  
11:00 Jeffrey Lyash, President and Chief Executive Officer of Progress Energy Florida  
(*Island 2 Room*)
- 11:00 – Panel Session 1 – “Ensuring Efficiency, Supporting Customers Today, and Meeting the Challenges of the Future”  
(*Island 2 Room*)
- 14:00 – Panel Session 2 –  
15:00 “Multimedia PLC LANs and Broadband Over Powerlines (BPL)”  
(*Island 2 Room*)
- 15:00 – Coffee Break  
15:30 (*Lobby II*)
- 15:30 Session 4 – Modelling Power Systems, Demand Response and End Use, and Tariff Issues  
(*Island 2 Room*)
- Session 5 – Communications Systems  
(*Gulf Room*)
- Session 6 – Power Quality, Filtering, and Experimental Performance Evaluations  
(*Palm Room*)
- 19:30 – Dinner Banquet  
23:00 (*Beach/ Gulf Room*)

**Friday, January 5, 2007**

08:30 Tutorial Presentation I -  
"Power Quality of Electrical  
Machines, Transformers, and  
Capacitors"  
(Island 2 Room)

Tutorial Presentation II -  
"Counteracting Fears about  
Energy"  
(Gulf Room)

10:00 - Coffee Break

10:30 (Lobby II)

10:30 Tutorial Presentations I and  
II Continued

14:00 Session 7 - Forecasting,  
Computational Methods and  
Electronics  
(Beach Room)

Session 8 - Distribution  
System Issues, Micro  
Turbines and Micro Grids  
(Island 2 Room)

Session 9 - Wind Power  
Systems  
(Gulf Room)

Session 10 - Nuclear Power,  
Power Plants, Modelling and  
Evaluation of Energy  
Systems  
(Palm Room)

15:00 - Coffee Break

15:30 (Lobby II)

15:30 Sessions 7, 8, 9, and 10  
Continued

**WEDNESDAY,  
JANUARY 3, 2007**

**07:00 – 08:30 REGISTRATION**

*IASTED Staff: M. Deacon (Canada)*

*Location: Lobby II*

**10:00 – 10:30 COFFEE BREAK**

*Location: Lobby II*

**13:30 – 14:00 WELCOME  
ADDRESS**

*Presenter: A. Domijan, Jr. (USA)*

*Room: Island 2*

**14:00 – SESSION 1 – POWER  
SYSTEM PLANNING,  
INVESTMENT, REAL-TIME  
MANAGEMENT AND  
OPERATIONS**

*Chair: L.A. Tuan (Sweden) and X.*

*Chen (China)*

*Room: Island 2*

539-033

Feasibility Assessment of  
Path-Planning for Pipeline System  
Construction of Electric Utilities  
Network Enhancement  
*C.-C. Lin and S.-J. Huang (Taiwan)*

539-041

Methodology and Implementation  
Strategy for Predicting the  
Location Of Permanent Faults in  
Distribution Power Systems  
*L. Nastac, A. Thatte, P. Wang,  
R. Lascu, D. Costyk (USA),  
T. Abdelazim and S. Kuloor (Canada)*

539-088

Long-Term Congestion  
Management by Investment in  
Gas-Turbine Generators:  
A Cost-Benefit Analysis  
*L.A. Tuan (Sweden) and  
K. Bhattacharya (Canada)*

539-102

Fuzzy Expected Value Model for  
Transmission Planning with  
Hybrid Intelligent Algorithm  
*Z. Hu, M. Xu and J. Wu (PRC)*

539-079

The Structure and Operation  
Scheme of an Automatic and  
Supervisory Control System for  
KEPCO UPFC  
*S.-J. Ahn, D.-W. Lee, and S.-I. Moon  
(Korea)*

539-030

A Power-Aware System  
Combining Static Compiling and  
DVFS  
*T. Chen, J. Qian, J. Huang, and  
Z. Zheng (PRC)*

539-084

Synthetic River Flow Time Series Generator for Dispatch and Spot Price Forecast

*R.A. Flores (Sweden), J. Szczupak, and L. Pinto (Brazil)*

539-114

A Novel Arc Jointing Robot Scheduling Method in Electric Power Plants Using Adaptive Neural Network and Fuzzy Reasoning

*X. Chen, and H. Xu (China)*

**14:00 - SESSION 2 -  
INFRASTRUCTURE,  
RELIABILITY, AND WEATHER  
EFFECTS**

*Chairs: H. Shaalan (USA) and*

*H.M. Ismail (Kuwait)*

*Room: Gulf*

539-112

Development of a VxWorks-Based Distributed Power Quality Monitoring System

*M.-J. Shin, S.-J. Kim, Y.I. Son, and S.-H. Kang (Korea)*

539-806

Interfacial Performances Between Insulating and Semi-Conductive Silicone Polymer in Power Distribution Line

*K.-T. Lee, C.-H. Hwang, and C.-S. Huh (Korea)*

539-032

Effect of Oil-Pipelines Existed in HVTL Corridor on the Electric Field Distribution

*H.M. Ismail (Kuwait)*

539-039

Optimization of Power Cable Thermal Performance using Finite-Element Generated Gradient

*M.S. Al-Saud, M.A. El-Kady, and R.D. Findlay (Canada)*

539-044

Critical Bus Ranking under Line Outage Contingencies

*M. Jain, P.S. Venkataramu, and T. Anandthapadmanabha (India)*

539-111

Modeling Power Distribution System Reliability as the Function of Common Weather Conditions

*B. Lim, A. Domijan, L. Davis and J.R. Diaz (USA)*

539-099

Analysis and Future Trends for the Belgian Electrical Supply Reliability

*F. Vallée, J. Lobry, and O. Deblecker (Belgium)*

539-010

Transmission Line Sag Calculations using Interval Mathematics

*H. Shaalan (USA)*

539-815

The Development of an Online Expert System Based Optimized Switching Scheme for a Flexible Reliable and Intelligent Electric Energy Delivery Systems (Friends) Network

*A.T. Adediran (Nigeria), and A. Domijan (USA)*

**14:00 - SESSION 3 -  
ALTERNATE ENERGY  
DEVELOPMENTS AND  
SUSTAINABILITY USING  
BIOMASS, SOLAR,  
AND OTHERS**

*Chairs: S.E. Lyshevski (USA) and M.G. Rasul (Australia)*

*Room: Palm*

539-045

Solar Photovoltaic Systems as an Alternative Source of Energy in Rwanda: Kigali City Case Study  
*N. Lujara (Rwanda), and O. Kaunde (Tanzania)*

539-067

Design and Implementation of a Microcontroller-based Maximum Power Point Tracking Fuzzy Solar Charge Controller

*A.A. Qazalbash, T. Iqbal, and M.Z. Shafiq (Pakistan)*

539-017

On the Invisible Socio-technical Systems - the Great Unknown  
*E. Löfström, and J. Palm (Sweden)*

539-015

Synthetic Nanoscale Motion Devices

*M.A. Lyshevski, and S.E. Lyshevski (USA)*

539-016

Microscale Self-sustained Power Generation Systems

*S.E. Lyshevski (USA)*

539-053

Adaptive and Flexible Energy Management for Micro Combined Heat and Power Systems

*J. Matics, G. Krost, S. Freinatis, and G. Dubielzig (Germany)*

539-811

Energy Production from Biomass in West Central Florida

*A. Domijan Jr., Don Payne, F. Torres, and X. Li (USA)*

539-025

Coal Seam Methane Power Generation

*M.G. Rasul, and J. Brown (Australia)*

**15:00 - 15:30 COFFEE BREAK**

*Location: Lobby II*

**15:30 SESSIONS 1, 2, and 3  
CONTINUED**

## THURSDAY, JANUARY 4, 2007

### 9:30 – 10:00 COFFEE BREAK

*Location: Lobby II*

### 10:00 – INTRODUCTORY ADDRESS

*Presenter: A. Domijan, Jr. (USA)*

*Room: Island 2*

### KEYNOTE INTRODUCTION

*Presenter: S. Saigal (USA)*

*Room: Island 2*

**Dr. Sunil Saigal** is the Interim Dean of the College of Engineering at the University of South Florida. Prior to his current position, he was the Chairman of the Department of Civil and Environmental Engineering at USF. Dr. Saigal received his Ph.D. in Aeronautics and Astronautics from Purdue University. He has held faculty positions at Worcester Polytechnic Institute and at Carnegie Mellon University before arriving at USF. From 1996-98, he was the Program Manager for the Mechanics and Materials Program at the National Science Foundation. He has held summer appointments at NASA, Oak Ridge National Laboratory and Sandia National Laboratory. He has authored over 100 technical articles in archival journals and serves on the editorial boards of several

journals. He is a Fellow of both the American Society of Civil Engineers and the American Society of Mechanical Engineers, and an Associate Fellow of the American Institute of Aeronautics and Astronautics. Dr. Saigal has won several teaching and research awards over the years.

### KEYNOTE PRESENTATION – “MEETING THE CHALLENGE OF FLORIDA'S ENERGY FUTURE”

*Presenter: J. Lyash (USA)*

*Room: Island 2*

**Mr. Jeff Lyash** became president and chief executive officer of Progress Energy Florida on June 1, 2006. Mr. Lyash joined Progress Energy in 1993 and spent his first eight years with the company at the Brunswick Nuclear Plant in Southport, North Carolina in a number of management roles, ending as Director of Site Operations. He then served as vice president of Transmission in Energy Delivery in the Carolinas.

Mr. Lyash came to Florida in November 2003, as Senior Vice President of Energy Delivery in Florida, overseeing all aspects of energy delivery operations for Progress Energy Florida, including electric distribution operations, customer service and community relations. Prior to joining Progress Energy, Mr.

Lyash worked with the Nuclear Regulatory Commission in a number of capacities. He has a bachelor's degree in mechanical engineering from Drexel University and serves on the boards of many community organizations, including Enterprise Florida, Tampa Bay Partnership, Florida Orchestra, Pinellas Education Foundation and the Florida Chamber of Commerce Foundation. He is also a member of the Florida Council of 100 and the Florida High Tech Corridor.

**11:00 - 12:30 PANEL**  
**SESSION 1 - "ENSURING EFFICIENCY, SUPPORTING CUSTOMERS TODAY, AND MEETING THE CHALLENGES OF THE FUTURE"**

*Organizer: C. Gillman (USA)*

*Room: Island 2*

Utility power systems are undergoing significant changes due to load growth, emerging technologies, environmental concerns, and customer requirements. Additional generation, transmission, substation and distribution capacity will be necessary to support this growth. The first step in addressing these capacity problems is to optimize the utilization of existing facilities. Energy Efficiency and Demand Side Management programs not

only address the capacity issue, but also environmental, reliability, and customer concerns. In this panel session, experts from several leading utilities will discuss new Energy Efficiency and Demand Side Management programs that utilize state-of-the-art technologies to control system loading and help customers operate more efficiently.

**14:00 - 15:30 PANEL**  
**SESSION 2 - "MULTIMEDIA PLC LANS AND BROADBAND OVER POWERLINES (BPL)"**

*Organizer: H. Latchman (USA)*

*Room: Island 2*

The purpose of this panel session is to present recent global developments using power distribution lines in-home for high speed multimedia networking as well as in using MV and LV powerlines as a solution to the last mile problem, namely for Broadband Over Powerline (BPL) Internet Access. The latter application also has significant implications for the Intelligent Grid and utility applications such as automatic meter reading (AMR). The session will also stimulate discussions on competing technologies such as wireless solutions in these application areas.

**Dr. Haniph A. Latchman** is a Professor of Electrical and

Computer Engineering at the University of Florida. He received his Ph.D. from Oxford University in 1986 and his Bachelor of Science degree (First Class Honors) from the University of the West Indies-Trinidad and Tobago, in 1981. Dr. Latchman is a Rhodes Scholar and a Senior Member of the IEEE and has published in over 115 technical journal articles and conference proceedings and supervised 17 Ph.D. and 35 MS students. Dr. Latchman has received numerous teaching and research awards, including the University of Florida Teacher of the Year Award and the IEEE 2000 Undergraduate Teaching Award. He is the author of the books *Computer Communication Networks and the Internet*, published by McGraw Hill; *Linear Control Systems - A First Course*, published by John Wiley; and *Control Systems Analysis and Design, A Laboratory Manual and Handbook*, published by John Wiley. Dr. Latchman conducts research, teaches, and consults in the areas of control and communication systems and networks

### **15:30 – 16:00 COFFEE BREAK**

*Location: Lobby II*

### **16:00 – SESSION 4 – MODELING POWER SYSTEMS, DEMAND RESPONSE AND END USE, AND TARIFF ISSUES**

*Chairs: C. Le Bel (Canada) and  
R. Herman (South Africa)*

*Room: Island 2*

539-018

Modeling and Forecasting  
Residential Loads as Probabilistic  
Currents for LV Network Design  
*R. Herman, and C.T. Gaunt  
(South Africa)*

539-051

Modal Analysis for Improving  
Voltage Stability Margin by  
Optimal Placement of Capacitors  
*H.L. Suresh, and M.S. Raoiprakash  
(India)*

539-062

Mathematical Modeling of the  
Energy Consumption of Heated  
Swimming Pools  
*C. Le Bel, and J. Millette (Canada)*

539-083

Modeling of Demand Response in  
Electricity Markets: Effects of  
Price Elasticity  
*E.C. Banda, and L.A. Tuan (Sweden)*

539-057

Short Term Use of the System  
Tariffs - The Substitution Method  
Revisited  
*P.M. De Oliveira-De Jesus, and  
M.T. Ponce de Leão (Portugal)*

539-054  
Electricity End-Use Intensities in  
New Construction  
*K. Tiedemann, and I. Sulyma  
(Canada)*

539-810  
Forecasting the Commercial  
Energy Requirement and  
Studying the Impact of  
Environmental Tax on Energy  
Demand for India  
*L. Suganthi, S. Iniyar, and  
A.A Samuel (India)*

### 16:00 - SESSION 5 - COMMUNICATIONS SYSTEMS

*Chair: O.S.A. Saleh (Libya)*  
*Room: Gulf*

539-071  
Broadband Power Line  
Communications: Factors  
Influencing the Signal  
Propagations in the Low Voltage  
Channel  
*J. Anatory (Tanzania), N. Theethayi,  
R. Thattappillil (Sweden),  
M.M. Kissaka, and N.H. Mvungi  
(Tanzania)*

539-110  
DVD-Quality Video Transmission  
on Powerline Channel  
*M. Lee (Korea), Y. Lee, and  
H.A. Latchman (USA)*

539-113  
Experimental Investigations of  
DNP3 Protocol for an Information  
Embedded Power System  
*M.T.O. Amanullah, A. Kalam, and  
A. Zayegh (Australia)*

539-109  
Efficient High Speed  
Communications over Electrical  
Powerlines for a Large Number of  
Users  
*J. Lee, K. Tripathi, and  
H.A. Latchman (USA)*

539-092  
Reliability Analysis for the 220KV  
Libyan High Voltage  
Communication System  
*O.S.A. Saleh, and A.Y. AlAthram  
(Libya)*

539-029  
Enhancement of Power System  
Communications Via Real-Time  
Transport Protocol  
*C.-C. Lin, and S.-J. Huang (Taiwan)*

**16:00 - SESSION 6 - POWER  
QUALITY, FILTERING, AND  
EXPERIMENTAL  
PERFORMANCE  
EVALUATIONS**

*Chair: M. Abaza (Canada) and  
M. Kchikach (Morocco)*

*Room: Palm*

539-004

Mitigation of Triplen Harmonics  
in Distribution System using  
Zigzag Transformer

*R. Omar, A. Ahmad, and  
M. Sulaiman (Malaysia)*

539-009

Prediction of Resonance Effect on  
the Common Mode Current Noise

*M. Kchikach, A. Menou, J. Elaoufi,  
A. Elhasnanoui (Morocco), and  
Z.M. Qian (PRC)*

539-046

Simplified Transient Model of the  
Transformer During Impulse Test

*E. Al-Ammar, and G.G. Karady  
(USA)*

539-065

Real-Times Modelling and  
Simulation of an Active Power  
Filter

*S. Beaulieu, M. Ouhrouche,  
C. Dufour, and P.-F. Allaire  
(Canada)*

539-052

Hysteresis Current Control of  
Single-Phase Shunt Active Power  
Filter using Frequency Limitation

*M.H. Antchev, M.P. Petkova, and  
A. Kostov (Bulgaria)*

539-034

On-Line Measurement of  
Transformer Losses under  
Non-Sinusoidal Operation

*D. Lin, and E.F. Fuchs (USA)*

539-802

An Accurate Method for  
Measurement of Line Frequency  
using Read-Only Memory

*M Abaza (Canada), and M.I. Irhid  
(Jordan)*

**19:30 - 23:00 DINNER  
BANQUET**

*Location: Beach/ Gulf Room*

**FRIDAY, JANUARY 5, 2007**

**8:30 - TUTORIAL  
PRESENTATION I -  
"POWER QUALITY OF  
ELECTRICAL MACHINES,  
TRANSFORMERS, AND  
CAPACITORS"**

*Presenter: E. Fuchs (USA)*

*Room: Island 2*

With distributed generation (DG), many more power producers using renewable energy and cogeneration will be operating at relatively low-voltage levels and with very limited short-circuit power. Power system impedance as seen by an individual DG power producer is relatively large, resulting in weak system characteristics, and power-quality problems become exacerbated as compared with very strong systems served by a few large power stations with large short-circuit capabilities. Power quality problems with respect to machines, transformers, and capacitors include:

1. Increase of hot-spot temperatures due to power system harmonics voltage, abnormal terminal voltages, increase of ambient temperatures above 40°C due to global warming, the effect of DC within the AC system caused by asymmetric gating

of inverters, and geomagnetically induced currents.

2. Renewable sources have intermittent power generation and conventional power generators must take up the slack, resulting in cyclic operation. Changing machine temperature reduces the lifetime of insulation material.
3. Greater probability for faults and transient disturbances such as short-circuits, reclosing, out-of-phase synchronization, and DC currents within AC system, resulting in extreme winding and iron-core forces, and vibrations.
4. Inter- and sub-harmonic torques in inverter-fed machines; that is, in variable-speed drive motors and in generators (e.g., wind, hydro) supplying rectifiers; harmonic torques due to time-dependent loads.

The tutorial will discuss an overview of the physical concepts and computational methods required to prevent or mitigate above-mentioned power quality problems, and several case studies with respect to induction and synchronous machines, transformers, and capacitors will be presented.

**Prof. Ewald F. Fuchs** is a Full Professor in the Department of Electrical and Computer Engineering at the University of Colorado, Boulder, CO, USA. He has been involved in the design, implementation, and evaluation of conventional and renewable energy power plants for over 35 years, including 8 years at Siemens AG power plant design. He has published more than 150 research articles on power quality, rotating machines, and transformers in IEEE, international journals, and conferences. Recent research focuses on problems related to renewable energy (e.g., large-scale energy storage) caused by the intermittent operation of power plants. Currently he is co-writing with a colleague from Australia the book, *Power Quality of Systems and Machines*, to be published by Elsevier.

### 8:30 – TUTORIAL PRESENTATION II – “COUNTERING FEARS ABOUT ENERGY”

*Presenter: S.F. Singer (USA)*

*Room: Gulf*

Energy, generated mostly from fossil fuels and nuclear fission, is the lifeblood of economic growth and of rising global prosperity. Yet there are several “fears” driving energy policy, which impose unnecessary costs on

consumers, lower the standards of living, and threaten the economies of the poorest nations.

1. Fear of health consequences of air pollution: This problem has been largely overcome by technology – even for coal-burning powerplants. Several methods are available and compete on cost: Gasification of coal in combined-cycle burning (IGCC) and various methods of flue-gas scrubbing with lime or with bromine. Meanwhile, unregulated indoor air pollution is becoming increasingly important.
2. Fear of climate change: While carbon dioxide is a greenhouse gas that should cause global warming, the available observational evidence shows the effect to be insignificant. Yet many nations have been persuaded to use high-cost natural gas (methane) or even costlier “renewable” energy (wind, etc). In particular, the Kyoto Protocol would effectively ration energy. Meanwhile, economic studies indicate that higher CO<sub>2</sub> levels and modest warming are beneficial and would raise GDP.
3. Fear of oil embargoes: With a well-functioning world market there should be little concern about oil supply

security. It is in the interest of producers to keep the price from rising too high. But increasing prices are inevitable; as low-cost oil supplies are gradually depleted, they will induce more conservation and substitutions for petroleum.

4. Fear of health consequences of nuclear radiation: Politically driven fears, not scientific data, support the "linear-no-threshold" (LNT) hypothesis. In reality, natural radioactivity and small exposures to manmade radiation may actually improve the functioning of the immune system ("Hormesis"). Abandoning LNT-based regulation would lower the cost of nuclear energy generation and the disposal of spent reactor fuel.

Overcoming these fears through public education involves fighting entrenched bureaucracies and other interests – and may take time.

**S. Fred Singer** has written on the price of world oil and calculated its "optimum price path." He authored a number of books, including *Free Market Energy* – and most recently *Unstoppable Global Warming* – Every 1500 Years. He has held several university faculty positions and

five federal appointments, most recently as Chief Scientist of Transportation. He was an adviser to Treasury Secretary Wm Simon following the 1974 "oil crisis" and is an active participant in the ongoing debate on future oil supply. His major contributions have been to space science and space technology, including service as the founding director of the US Weather Satellite Service (now NESDIS-NOAA), for which he received many awards

### 10:00 – 10:30 COFFEE BREAK

*Location: Lobby II*

### 10:30 TUTORIAL PRESENTATIONS I AND II CONTINUED

### 14:00 – SESSION 7 – FORECASTING, COMPUTATIONAL METHODS AND ELECTRONICS

*Chair: M. Lu (China)*

*Room: Beach*

539-056

Operative Forecasting of the Random Process of Active Power Consumption in the Electric Power System and its Main Nodes  
*D. Nikolov (Bulgaria)*

539-077

An Algorithm of Power Flow for Distribution Networks Based on Node Load Membership Grade Function with Incomplete Information

*X. Li, and N. Zhang (PRC)*

539-087

Best Control Strategy for Unified Power Quality Conditioner (UPQC) Based on Simulation

*H.A. Shayanfar, N.M. Tabatabaei, and A. Mokhtarpour (Iran)*

539-803

Fusion of Neural Computing and PLS Techniques for Load Estimation

*M. Lu, H. Xue, X. Cheng, and W. Zhang (China)*

539-063

Characterization of the M100-12 NIZN Battery

*F.P. Tredeau, and Z. Salameh (USA)*

**14:00 - SESSION 8 -  
DISTRIBUTION SYSTEM  
ISSUES, MICRO TURBINES  
AND MICRO GRIDS**

*Chair: A.S. Al-Hinai (Oman)*

*Room: Island 2*

539-068

A Novel Power Factor Correction for Distribution Feeder with LC Resonance

*I. Yamamoto, K. Matsui, and M. Hasegawa (Japan)*

539-069

Novel Measurement Methods for Distribution Feeder Impedance on Hot Line

*I. Yamamoto, K. Matsui, and M. Hasegawa (Japan)*

539-813

New Low Voltage (LV) Distribution Automation System

*M.M. Ahmed, and M. Sulaiman (Malaysia)*

539-819

Introduction of Taipower Distribution System and Reliability Improvement Strategies

*C. Chen, C. Liu, and A. Domijan (USA)*

539-080

Impact of Microturbines on Load Following Control in Deregulated Power Distribution Systems

*A.S. Al-Hinai (Oman), and A. Feliachi (USA)*

539-816

Microgrids: A Look into the Power Delivery System of the Future

*A. Domijan Jr. (USA), F. Torres, and C. Álvarez Bel (Spain)*

## 14:00 - SESSION 9 - WIND POWER SYSTEMS

*Chairs: S. Li (USA) and T. Thiringer  
(Sweden)*

*Room: Gulf*

539-061

Past, Present, and Future of Kites  
and Energy Generation

*J. Breukels, and W.J. Ockels  
(The Netherlands)*

539-066

Simulation Study of Fixed Speed  
Wind Energy Conversion System  
and Compression using Pspice

*S. Li, and T.A. Haskew (USA)*

539-073

Battery Capacity Estimation in  
Wind Power Generation System

*R. Furuyama, Y. Watanabe, and  
S. Wakao (Japan)*

539-095

A Current Control Strategy for  
PWM Converter in Variable  
Speed Wind Power Generation

*N. Zhu, H. Liang, and J. Jiang (PRC)*

539-107

Experimental Experiences of the  
Summation of Flicker  
Contribution from Individual  
Wind Turbines in a Wind Park

*T. Thiringer (Sweden)*

539-049

Modelling Risks of the Wind  
Energy Projects

*D. Skrlec, S. Krajcar, and F. Muzinic  
(Croatia)*

539-074

A Dynamic Model for a Wind  
Turbine System Including a  
Matrix Converter

*S.M. Barakati, M. Kazerani, and  
J.D. Aplevich (Canada)*

## 14:00 - SESSION 10 - NUCLEAR POWER, POWER PLANTS, MODELING AND EVALUATION OF ENERGY SYSTEMS

*Chairs: K.E. Holbert (USA), and  
V.P. Lucic (USA)*

*Room: Palm*

539-050

Signs of a Nuclear Revival in The  
United States?

*K.E. Holbert (USA)*

539-055

Life Evaluation Method for Gas  
Turbine Blades Made of  
INCOL718 Alloy

*S.K. Bhatti, S.C. Prasad,  
D.R. Krishna, I.N.N. Kumar, and  
B.V.A. Rao (India)*

539-082

A New Approach to an Optimal  
Adaptive Real Time DC Motor  
Drive Control

*V.P. Lucic and J.B. Hall (USA)*

539-089

Energy Requirements for Air-  
Conditioning Systems

*A.A.-M. Ali, G.P. Maheshwari, and  
A. Al-Awadhi (Kuwait)*

539-100

A New Estimation Scheme for State-of-Charge in Battery Management Systems

*P.-S. Kim, C.-W. Ha, B.-O. Min, E.-H. Lee, E.-T. Kim, and O.-S. Kwon (Korea)*

539-085

A High Performance Architecture for Real Time Power System Simulators Based on FPGA Hardware Acceleration

*J.C.G. Pimentel (Canada)*

539-024

Computer Aided Selection of Power Plants by MADM Methodology

*R.K. Garg, and V.K. Gupta (India)*

**15:00 – 15:30 COFFEE BREAK**

*Location: Lobby II*

**15:30 SESSIONS 7, 8, 9, and 10 CONTINUED**

**PLEASE NOTE**

- ❖ Paper presentations are 15 minutes in length with an additional 5 minutes for questions.
- ❖ Report to your Session Chair 15 minutes before the session is scheduled to begin.
- ❖ Presentations should be loaded onto the presentation laptop in the appropriate room prior to your session.
- ❖ End times of sessions vary depending on the number of papers scheduled.

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**IASTED would like to thank you for attending PES 2007. Your participation helped make this international event a success, and we look forward to seeing you at upcoming IASTED events.**

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The International Association of Science  
and Technology for Development



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