Plain Talk about the Electric Power System

Education for Power Industry Professionals

July 25-29, 2010 Minneapolis, Minnesota
Minneapolis Convention Center
Co-located with PES General Meeting

Registration Information on Page 9

THE ELECTRIC POWER SYSTEM enables our economy and society to function. In some way everything that impacts our lives, from our homes, our businesses, our government, and our critical infrastructure requires a dependable and economic supply of electricity.

Although the electric power system was initially developed in the late 1800s and is considered the most significant engineering accomplishment of the 20th Century, it still is undergoing change; partly driven by technology, partly driven by economic forces and partly driven by governmental action. Yet many individuals, even those involved with the industry, do not fully understand how a power system operates and what technical changes might impact the system as it continues to evolve in the 21st Century.

Check out these exciting courses offered by the IEEE Power & Energy Society:

For Non-Engineering Power Professionals

- **Operation of Electricity Markets—Technical and Economic Aspects (p.2)**
- **Power System Basics—Understanding the Electric Utility Operation Inside and Out (p.3)**
- **Distribution Systems—Delivering Power to the Customer (p.3)**
- **The Grid—The Interconnected Electric Bulk Power System (p.5)**

For Engineering Power Professionals

- **Power Quality—From Lightning to Harmonics: Problems and Solutions (p.6)**

For Power Professionals

- **Smart Grid 101—The Basics of Smart Grid (p.7)**
- **Smart Grid Cybersecurity—Protecting the Smart Grid (p.8)**

WHO SHOULD ATTEND:

Plan to attend if you are a utility board member or manager, a business executive, a power broker, a power marketer, a government official, a regulatory or legislative staff member, a public affairs administrator, an attorney, member of a consumer group, a member of the media, an economist, an accountant, or an engineer not in the power field, or anyone with an interest in learning about electric power systems upon which we all depend.

These courses are also appropriate for engineers who are not currently in the power industry but are transitioning to the industry or would like to learn more about it.

Plain Talk about the Electric Power System for the Non-Engineering Power Professional

July 25: Operation of Electricity Markets—Technical and Economic Aspects
Kankar Bhattacharya

The course presents an overview of the functioning and operation of electricity markets and the operation of the electric power system as a whole in the context of the deregulated electricity market environment. The topics include electricity market structure and design, various categories of market auctions, electricity price formation, roles of the Independent System Operators in different market structures, transmission pricing paradigms, congestion management, transmission rights and ancillary services
management. A highlight of the course is the discussion on country specific operating practices from various restructured power systems worldwide.

Emphasis of the course is on the understanding of issues in deregulated power system operation and the balance between the levels of technical detail alongside the economic aspects. Attendees will gain an in-depth understanding of the functioning and operation of electricity markets, as well as the background necessary to discuss topical issues in electricity markets and how they are handled world-wide.

Professor Kankar Bhattacharya obtained his Ph.D. from Indian Institute of Technology, New Delhi, India, in 1993. He was in the faculty of the Indira Gandhi Institute of Development Research (IGIDR), Mumbai, India, during 1993-98. During his tenure at IGIDR Mumbai, he also held visiting faculty appointments at the Tampere University of Technology, Finland, and the International Institute for Applied Systems Analysis (IIASA), Austria, to work on IIASA-World Energy Council Project on Long-term Energy Scenarios for South Asia.

In 1998 he moved to Sweden to join the Department of Electric Power Engineering, Chalmers University of Technology, at Gothenburg as the first holder of the Frederik Lamm Chair of Assistant Professor (1998-2001), was awarded the Docent (2001) and promoted to the rank of a tenured Associate Professor in 2002. In January 2003, he joined the faculty of the University of Waterloo, Waterloo, Ontario, Canada, as a tenured Associate Professor in the Department of Electrical & Computer Engineering and was promoted to the rank of a full Professor in July 2007.

Professor Bhattacharya's research interests include power system operations, planning and economics- particularly in the context of restructuring of the power industry, power system dynamics, stability and control, and emerging issues in power sector deregulation. He has been involved in Ph.D. supervision, industrial research projects, power-engineering curriculum development and education at under-graduate, graduate, Ph.D. levels as well as conducting external (industrial) courses.

Professor Bhattacharya received the Runner-up Award for *Application of Operations Research to Development* from International Federation of Operational Research Societies (1996), the Best Paper Award at the IEEE T&D Conference (2001), the Gunnar Engstrom Foundation Award from ABB Sweden (2001) for his research in power system economics. He has also been awarded the Distinguished Performance Award (2004) and the Outstanding Performance Award (2006) by the University of Waterloo.

Professor Bhattacharya is the author of the well received book- *Operation of Restructured Power Systems*, Kluwer Academic Publishers (2001). He is one of the Editors of *IEEE Transactions on Power Systems* (2005-present) and *IEEE Power Engineering Letters* (2005-present).

COURSE DATES, DESCRIPTIONS & INSTRUCTOR BIOS

PLAIN TALK Courses July 25-29, 2010—Minneapolis, Minnesota

For Non-Engineering Power Professionals

July 27: Power System Basics—Understanding the Electric Utility Operation Inside and Out
Steven W. Blume

The focus of this course will be on providing a thorough foundation in electric power systems, planning, operations, economics and various regulatory frameworks. Basic electrical terminology will be explained in simple to understand language with regard to design, construction, operation and maintenance of power plants, substations and transmission and distribution lines. Anyone who is not a professional engineer and involved in the decision making process within the electric utility environment can benefit from attendance at this course.

TOPICS INCLUDED:

- Introduction and Brief History
- Fundamentals of Electric Power
- Generation and Transmission
- Distribution and Utilization
- Power Systems Protection
- Power Systems Operation and Interconnection
- Regulation.

Steven W. Blume is president and CEO of Applied Professional Training, Inc. He has led APT into a world-class technical training company servicing the electric power and telecommunications industries. He is a registered professional engineer with a Master's degree specializing in electric power systems and a Bachelor's degree specializing in telecommunications. Mr. Blume has extensive experience in power systems planning, design and construction of major lines and substations plus dispatch, protective relaying, and safety. His telecom experience includes fiber optics, microwave, radio, power line carrier and copper systems in high voltage environments. He holds many professional certificates, memberships, and is highly recognized in both the electric power and telecommunications industries. This unique combination of knowledge and experience makes him an excellent instructor for this course.

July 28: Distribution System—Delivering Power to the Customer
Joseph L. Koepfinger & Maurice Ney

Attendees will receive a thorough briefing and understanding of the issues associated with the planning, engineering, design, operation, and automation of electrical distribution systems. This course is intended for those who are not familiar with the delivery of electricity to the end user.

The Function of the Distribution System and Its Place in the Electric Delivery System

An Examination of the Planning Issues: Demographics, economics, optimization of asset usage, safety, aesthetics, customer relationships, government regulator relationships, reliability-including availability, dependability, and quality.
Engineering Design and Operation Issues: Operational designs, equipment performance, overhead and underground construction.
Historical Development: Evolution of the distribution system—past to present.
The Distribution System in North America and in Other Countries
Overhead vs. Underground: Construction advantages and limitations. Examining reliability, aesthetic, restoration, outages and lessons learned.

(Continued on page 4)

For Non-Engineering Power Professionals

(Continued from page 3)

Distribution Planning Considerations: The Long Range and the Short Range Issues
Distribution Engineering Considerations
Engineers-Technicians & Others: Electrical, Civil/Surveyors and Technicians.
Engineering Tasks: Includes the planning process and technology issues, budgetary issues, loss mitigation, circuit routing, circuit load ratings, voltage regulation, equipment performance, type of equipment, equipment limitations and standards.
Operating Engineering Tasks: Operating challenges to the engineer covering practical problems including crew schedules, union rules, safety rules and accounting procedures.
Distribution Automation: Concepts and differences in distribution automation.
Defining the Project: Including service reliability, outage management, disaster recovery.

Distribution and Distributed Generation
Radial Circuits: National and international issues and the role of standards.
Secondary Network Circuits: Addressing the interconnection challenge.

Joseph L. Koepfinger is a consultant with 51 years of utility experience, recently retired from Duquesne Light Company. In his last position he was Director of System Studies and Research, where he was responsible for managing the research programs. While employed at Duquesne he was responsible for the conduct of special investigations of technical problems, insulation coordination, surge protection and, in particular, the studies of electrical transient conditions in power systems. Recent investigations under his leadership involve the study of the characterization and management of electromagnetic fields, cable failure, manhole explosions, transformer fire control, interconnection of distributed resources and advanced outage management systems. He has worked in the fields of protection, communications and control, and surge protection. He holds a Bachelor of Science and Master of Science in Electrical Engineering from the University of Pittsburgh. He is a licensed professional engineer in the state of Pennsylvania and a Certified Cogeneration Professional.

Maurice Ney has extensive experience in operations, engineering, planning, and customer care. He has a proven record of achieving continuous improvements in process, costs, system improvements, and customer satisfaction. In addition he has significant experience in managing transmission and distribution operations in the utility industry. As an independent consultant on utility operations, he has worked as a team member on projects for utilities in the Northwest and on the East Coast performing evaluations of current state transmission and distribution operations and the design of future state processes for improved performance and reliability. He has worked with the Electric Power Research Institute as a technical consultant on outage management, recovery and disaster planning, strategic planning and development of technical specifications for the design of an Advanced Outage Management System, and the development of key initiatives targeted at the prevention of, preparedness for, and recovery from man made and natural disasters and the major electric power outages that can accompany them. He has held various engineering and management positions at a major electric utility. During this time, he has actively participated in the development of a $150 million capital and operating budget, developed an incentive compensation model based on profitability and customer satisfaction, developed strategies for complying with state and federal regulatory agencies, and assisted in the development of a process-focused organization and strategies to attain top quartile performance as defined by customer satisfaction cost/customer, and reliability. He received a Bachelor of Science degree in Electrical Engineering from Pennsylvania State University and he is a Licensed Professional Engineer in Pennsylvania.

COURSE DATES, DESCRIPTIONS & INSTRUCTOR BIOS

PLAIN TALK Courses July 25-29, 2010—Minneapolis, Minnesota

For Non-Engineering Power Professionals

July 29: The Grid—The Interconnected Electric Bulk Power System
Robert W. Waldele

This course is intended for anyone interested in gaining a deeper understanding of how the interconnected electric bulk power systems in the United States or "grids," work. This would include economists, attorneys and other non-technical professionals, as well as engineers and technically educated personnel. It should be particularly relevant for market participants, since a better understanding of the grid and how it functions will lead to more efficient use of resources and avoidance of unnecessary costs.

The Grid course is based on seminars and workshops previously conducted for a variety of organizations, including: BC Hydro, Cegelec ESCA (Bellevue, WA), the U.S. Department of Defense, FERC Staff, the Florida PSC Staff, Florida Reliability Coordinating Council, the ISO-New England Board, Kansas City Power & Light, Oglethorpe Power Corp., Mappcor (St. Paul, MN), Mirant Corporation (Atlanta), the Nebraska Society of Professional Engineers, the New York State Reliability Council, the New York State Public Service Commission, and ITC Transmission.

TOPICS INCLUDED:

- The concept of interconnection.
- Power flow, "loop flow," transient stability, and VAR.
- Control Areas, Reliability Councils, NERC/ERO, ISOs and RTOs.
- Reliability standards and contingency analysis.
- Transmission Transfer Capabilities and how they are determined.
- Economic constraints vs. reliability risks.
- The Great Blackouts.

Robert W. Waldele is a power system consultant with over 35 years of experience in EHV transmission system reliability studies, power system operation, and system operator training. He holds a BSEE from Northwestern University Technological Institute (McCormick School of Engineering). Bob joined the New York Power Pool in 1972 in the energy management system support group. As a Senior Engineer in Transmission Planning he coordinated system planning and reliability studies for the coordination of the bulk transmission system in New York State. While there he also served as Manager of System Operator Training and developed the transition program to open access and market operation under the New York Independent System Operator, Inc. (NYISO). Following NYISO start-up, he was named Manager of the NYISO Operations Engineering group and the Electric System Planning department. He has served on a number of working groups under the Northeast Power Coordinating Council, including Special Protection Systems, Interconnected System Dynamics, Dynamic Controls and System Operator Training. He was a member of the New York State Reliability Council's Reliability Rules Subcommittee. He has been an active participant in IEEE working groups including Transmission Subcommittee, Power System Dynamics, and the Operator Training Working Group. He served on the US-Canada Joint Task Force August 14, 2003 Blackout Investigation "Operator Tools, Training & EMS Performance Evaluation" Team, and supported the Sequence of Events and Root Cause Analysis teams.

COURSE DATES, DESCRIPTIONS & INSTRUCTOR BIOS

PLAIN TALK Courses July 25-29, 2010—Minneapolis, Minnesota

Plain Talk about the Electric Power System for the Engineering Power Professional

This course is ALSO being offered as a PES General Meeting "Tutorial Sponsored by Plain Talk;" select with conference registration.

July 25: Power Quality-From Lightning to Harmonics: Problems and Solutions
Surya Santoso, Roger C. Dugan, Mark McGranaghan

The aging power grid infrastructure and the incompatibility between today's load characteristics and the electric power supply environment frequently give rise to poor electric power quality. This results in significant economic losses in a wide range of industries, including financial, services, health care, high tech, and process manufacturing. As an example, a decrease in the supply voltage for a fraction of a second can trip a microprocessor-based controller offline, disrupting an entire manufacturing process. This course provides a solid foundation in understanding common power quality phenomena, root causes of power quality disturbances, power quality solutions, power quality monitoring, and technical standards.

Course participants will gain a fundamental understanding of the concepts, phenomena, and root causes of electric power quality, as well as insight into power quality improvements and solutions.

Surya Santoso earned his MSE and Ph.D. degrees in electrical and computer engineering from the University of Texas at Austin in 1994 and 1996, respectively. He joined the same university as an assistant professor in fall 2003. His research lies in the broad area of electric power quality, time-domain modeling and simulation of electrical systems, and wind power integration. He was a consulting engineer with Electrotek Concepts in Knoxville, TN between 1997 and 2003 where he performed a wide range of power quality studies. He has authored *Fundamentals of Electric Power Quality*, 2008; a book-chapter on Power Quality and Reliability in *Standard Handbook for Electrical Engineers*, 15th edition, McGraw-Hill (2006), and co-authored a professional series engineering book with Roger C. Dugan, Mark F. McGranaghan, and H. Wayne Beaty, *Electrical Power Systems Quality* published by McGraw-Hill in 2003. He has published over 60 technical papers in electric power quality and wind power systems.

Roger C. Dugan has over 35 years of combined experience in distribution engineering with EPRI, Electrotek Concepts, and with Cooper Power Systems. He holds the BSEE degree from Ohio University and the Master of Engineering in Electric Power Engineering degree from Rensselaer Polytechnic Institute, Troy, NY. Roger has worked on many diverse aspects of power engineering over his career because of his interests in applying computer methods to power system simulation. Beginning with a student internship with Columbus and Southern Ohio Electric Co, his work has been mostly in distribution engineering. He was elected a Fellow of the IEEE for his contributions in harmonics and transients analysis. Recently, he has been very active in distributed generation, particularly as it applies to utility distribution systems and distribution system analysis. He is coauthor of Electrical Power Systems Quality published by McGraw-Hill, now in its 2nd edition. He serves on Distribution System Analysis Subcommittee and is currently Chair of the Distribution Test Feeders WG.

Mark McGranaghan is a Director in the EPRI Power Delivery and Utilization (PDU) Sector. His research area responsibilities include overhead and underground distribution, advanced distribution automation, Intelligrid, and power quality. He is also directing EPRI's extensive smart grid demonstration initiative. Mr. McGranaghan joined EPRI Solutions in 2003 as an Associate Vice President in charge of System Studies and Monitoring Systems. He assumed the Director role as part of the merger of EPRI Solutions with EPRI in 2007. At EPRI Solutions, he coordinated a wide range of services offered to electric utilities and critical industrial facilities throughout the world. Before joining EPRI Solutions and EPRI, Mr. McGranaghan worked for Electrotek Concepts for 14 years and McGraw-Edison/Cooper Power for 11 years. These jobs also involved supporting utilities in system performance assessments and studies. Mr. McGranaghan has BSEE and MSEE degrees from the University of Toledo and an MBA from the University of Pittsburgh. He has taught seminars and workshops around the world and is very active in standards development and industry activities (IEEE, CIGRE, IEC).

Plain Talk about the Smart Grid

for Power Professionals

(General Meeting "Tutorial Sponsored by Plain Talk;" Conference Registration Required)

July 28, 8:30—12:30 Smart Grid 101—The Basics of Smart Grid
Erich Gunther

Smart Grid 101 introduces the basics of Smart Grid, based on the NIST Smart Grid Framework. The course covers all aspects of smart grid, from "why smart grid now" to the key technologies that make up the smart grid. The course introduces the work of Open SmartGrid, Gridwise Architecture Council, NIST, DOE's Modern Grid Project, and other key efforts from around the world. The course will:

- Help you develop your business case.
- Increase your understanding of the key standards that will underpin the smart grid in the US.
- Introduce you to significant industry projects that are serving as key test beds.
- Introduce the major smart grid organizations and how to get involved.
- Provide an understanding of the major technologies that compose a typical smart grid.

The attendee will leave with a better understanding of the current state of the art in regulation and technology provided in a candid and unbiased fashion by one of the top practitioners in the industry.

Erich W. Gunther is the Chairman, Chief Technology Officer, and co-founder of EnerNex® Corporation in Knoxville, Tennessee where he helps EnerNex clients define their strategic direction in basic R&D, technology, and product development. He holds a BSEE degree from Gannon University and a Master in Engineering in Electric Power Engineering from Rensselaer Polytechnic Institute.

Gunther has years of experience in design and development of innovative solutions to a wide array of power system problems, most notably ways to take advantage of communications networks and technology to improve the efficiency, operating practices, and security of the electric power system.

Erich was appointed by the US Department of Energy in 2004 to serve on the GridWise Architecture Council (GWAC) - a focused team of experts assembled to articulate the guiding principles that constitute the architecture of a future, intelligent, transactive, energy system. Mr. Gunther serves on the board of directors for Global Smart Infrastructures, and the Utility Communications Architecture International Users group. He is a registered professional engineer in the state of Tennessee.

Erich is a senior member of the IEEE and is actively involved in various working groups and committees including serving as the co-chair of the Power and Energy Society Intelligent Grid Coordinating Committee, chairman of the P1159.3 task force on power quality data interchange, vice chair of the harmonics working group, vice chair of the SCC-22 power quality standards coordinating committee and chairman of the interharmonic task force. Erich is the principal author and chapter chairman of the terms, definitions, and phenomena sections of the IEEE Guide to Monitoring Power Quality produced by the P1159 working group. He is also a member of various international technical groups involved in power quality related activities including serving as the convener of the CIGRE C4.1.06 working group on power quality measurement compliance and IEC TC 77a WG9 on power quality measurement methods. In addition to his power quality standards activities, Mr. Gunther is heavily involved in international standards development related to electric power communications architecture, information modeling, and cyber security.

Plain Talk about the Smart Grid

for Power Professionals

(General Meeting "Tutorial Sponsored by Plain Talk;" Conference Registration Required)

July 28, 1:30—5:30 Smart Grid Cybersecurity—Protecting the Smart Grid
Sandy Bacik and Bobby Brown

This course introduces non-experts to the concepts, terminology and techniques of smart grid cyber security and cyber threats from malicious software and hackers. Students will be able to more easily interact with their own IT personnel and security experts by understanding the specialized concepts and vocabulary used by such personnel. In addition they will gain a basic knowledge of the types and sources of cyber threats in smart grid infrastructure as well as the technology and techniques used to provide security. For experts and non-experts alike, an overview of evolving best practices and industry standardization efforts will provide you with a toolkit to utilize immediately in your own organization.

Sandy Bacik has over 14 years direct development, implementation, and management information security experience in the areas of Audit Management, Disaster Recovery/Business continuity, Incident investigation, Physical security, Privacy, Regulatory compliance, Standard Operating Policies/Procedures, and Data Center Operations and Management, with an additional 15 years in Information Technology Operations. She joined EnerNex in January of 2010. She holds a B.A. in Mathematics and Management Information Systems from Gannon University.

Throughout her career Ms. Bacik has managed, architected and implemented comprehensive information assurance programs and managed internal, external, and contracted/outsourced information technology audits to ensure various regulatory compliance for state and local government entities and Fortune 200 companies. She has developed methodologies for risk assessments, information technology audits, vulnerability assessments, security policy and practice writing, incident response, and disaster recovery. She has implemented cross-functional Business Continuity Programs and developed an enterprise-wide security conscious culture through information assurance programs.

Ms. Bacik has been heavily involved with local, national, and international security industry events, she is a Certified Information Systems Security Professional (CISSP), Information System Security Management Professional (ISSMP), Certified Information Security Manager (CISM), Certified in the Governance of Enterprise IT (CGEIT), and Certified in Homeland Security (CHS) – Level III. She is a regular presenter at MIS Training Institute security conferences. Ms. Bacik currently volunteers with NERC, NIST, and UCA in assisting in developing interoperability and security standards for the Smart Grid. Ms. Bacik is the author of Building an Effective Security Policy Architecture and a contributing author to the Information Security Management Handbook (2009).

Bobby Brown is the Director of Communication and Information Systems Security for the Smart Grid Engineering Team at EnerNex. Prior to his Director position, Bobby was the Utility Information Systems Architect. His experience in information security and systems operations makes him an asset to the EnerNex staff.
He is a utility consultant supporting information security and systems engineering for AMI and other utility convergence and infrastructure applications. Bobby is co-author of the NIST Smart Grid Interim Roadmap; UCAIug AMI-SEC AMI System Security Requirements developed by the AMI Security Acceleration Project (ASAP); and has authored other AMI whitepapers and guidelines. Bobby is the Program Manager for the ASAP-SG (Advanced Security Acceleration Project for Smart Grid); a team focused on developing a security profile blueprint for smart grid and security profiles for AMI, network, distributed automation and substation automation.
Prior to joining EnerNex, Bobby served in the roles of Director of Information Systems for Appalachian Underwriters, Inc., President of Computer Knowledge, Inc., and Information Systems Security Specialist for the Department of Energy at Y-12. He is Secretary of the UCAIug UtiliSEC WG and AMI-SEC TF, and a contributing member of the NIST Cyber Security Coordination Task Group (CSCTG) and IEEE. Bobby holds a B.S. in Computer Information Systems.

Plain Talk about the Electric Power System

July 25-29, 2010 Minneapolis, Minnesota
Minneapolis Convention Center
Co-located with PES General Meeting

Name _____ Company _____ Title _____

Street _____ City _____ State _____ Zip _____

Phone _____ Fax _____ Email _____

EARLY BIRD DISCOUNTS: An early bird 10% discount is offered to attendees who register and pay on or before June 30, 2010.
GROUP DISCOUNTS: 10% discount offered to two or more conference registrants from the same company or organization. Contact Susan Koval (s.koval@ieee.org, 732-562-6897) for discount code prior to registration.

Fee includes continental breakfasts, lunches, refreshment breaks and all course materials.

1-CHOOSE YOUR ENROLLMENT OPTION:

FOUR COURSE ENROLLMENT (please check the appropriate box)
□ **Early Bird Fee** (paid registration on or before June 30, 2010) - $2,444
□ **Regular Fee** (paid registration after June 30, 2010 and on site) - $2,715
□ **Group Rate** (10% discount from Early Bird or Regular Fee)
On or before June 30, 2010: $2,2200 per person After June 30: $2,444 per person Group Name: _____

THREE COURSE ENROLLMENT (please check the appropriate box)
□ **Early Bird Fee** (paid registration on or before June 30, 2010) - $1,935
□ **Regular Fee** (paid registration after June 30, 2010 and on site) - $2,150
□ **Group Rate** (10% discount from Early Bird or Regular Fee)
On or before June 30, 2010: $1,742 per person After June 30: $1,935 per person Group Name: _____

TWO COURSE ENROLLMENT (please check the appropriate box)
□ **Early Bird Fee** (paid registration on or before June 30, 2010) - $1,360
□ **Regular Fee** (paid registration after June 30, 2010 and on site) - $1,510
□ **Group Rate** (10% discount from Early Bird or Regular Fee)
On or before June 30, 2010: $1,224 per person After June 30: $1,360 per person Group Name: _____

ONE COURSE ENROLLMENT (please check the appropriate box)
□ **Early Bird Fee** (paid registration on or before June 30, 2010) - $715
□ **Regular Fee** (paid registration after June 30, 2010 and on site) - $795
□ **Group Rate** (10% discount from Early Bird or Regular Fee)
On or before June 30, 2010: $644 per person After June 30: $715 per person Group Name: _____

2-CHOOSE YOUR COURSE(S):

□ Electricity Markets □ Power Quality □ Power System Basics □ Distribution Systems □ The Grid

NOTE: Smart Grid 101 and Smart Grid Cybersecurity are General Meeting "Tutorials Sponsored by Plain Talk;" and Conference Registration is Required.

TO REGISTER ONLINE, GO TO: www.ieee-pes.org and follow the links to EDUCATION/ PROGRAMS/ PLAINTALK

OR

□ Mail to: IEEE-PES, 445 Hoes Lane, Piscataway, NJ 08854 TOTAL ENCLOSED $_____

□ FAX to: (732) 562-3881
□ Check (Payable to IEEE-PES)
□ Purchase Order—Please attach a copy of the Purchase Order along with your registration form.
□ Credit Card:_____ VISA _____ MasterCard _____ American Express
Card # _____ Exp. Date _____ Security Code: _____
Name on Card _____ Authorized Signature _____

Please contact Susan Koval (s.koval@ieee.org , (732) 562-6897) or visit www.ieee-pes.org for additional information.

Cancellations made in writing prior to July 12 will be fully refunded, less a $50 cancellation fee. There will be no refunds after July 12, 2010. If an enrollee is unable to attend, the fee may be used by a substitute, or for enrollment in a future course. In the unlikely event of an event cancellation, registrants will receive a full refund for the cost of registration only.

WHETHER YOU WORK IN THE ELECTRIC POWER INDUSTRY OR NOT, if you're interested in learning more about how the electric power system works, you now have the opportunity to gain the knowledge you need in a manner that you can understand.

As an attendee you will gain insight into the concerns of engineers, the demands of regulators and consumer groups and a perspective of how these factors play a major role in the operation of today's electric power systems.

PES Plain Talk courses for the Non-Engineering Power Professional will help you to understand technical aspects of the Electric Power System, even if you do not have an engineering background. You will gain insights into the concerns of engineers, the demands of regulators and consumer groups, and the factors and trends that impact the operation of today's electric power systems. These courses are also appropriate for non-power engineers who are transitioning to the electric power industry.

PES Plain Talk courses for the Engineering Power Professional are designed for engineers and technical staff in the electric power industry who are looking to increase their understanding and knowledge of critical technical areas in the industry. The courses provide an overview of the topic while allowing for interaction and a deeper dive into particular areas of interest.

PES Plain Talk courses about the Smart Grid for Power Professionals are designed for both technical and non-technical staff in the electric power industry who are looking to increase their insight into one of the hottest technical areas in power today. The courses provide the fundamentals of smart grid along with practical tools that can be used in the workplace.

ABOUT PES:

The Power & Energy Society is the society of electric power and energy professionals throughout the world. It provides the world's largest forum for sharing the latest in technological developments in the electric power industry, for developing standards that guide the development and construction of equipment and systems, and for educating members of the industry and the general public.

See Page 9 for Registration Form and Details!

The IEEE has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this approval, the IEEE has demonstrated that it complies with the IACET Standards which are widely recognized as standards of good practice internationally. As a result of their Authorized Provider membership status, IEEE is authorized to offer IACET CEUS for its programs that qualify under the IACET Standards.

Unless noted otherwise, courses run from 8:00 am—5:00 pm.
Registration and continental breakfast begin at 7:30 am.