

Mark Adamiak, IEEE Fellow, received his Bachelor of Science and Master of Engineering degrees from Cornell University in Electrical Engineering and an MS-EE degree from the Polytechnic Institute of New York.



Mark started his career with American Electric Power (AEP) in the System Protection and Control section where his assignments included R&D in Digital Protection, relay and fault analysis, and system responsibility for Power Line Carrier and Fault Recorders. In 1990, Mark joined General Electric where his activities have ranged from development, product planning, application engineering, and system integration.

Mr. Adamiak has been actively involved in the development of both the UCA and IEC61850 communication protocols, the latter of which is quickly being adopted as the next generation utility communications protocol. He was also the Principle Investigator on the EPRI IntelliGrid Architecture project. Mark is a Fellow of the IEEE, a member of HKN, past Chairman of the IEEE Relay Communication Sub Committee, a member of the US team on IEC TC57 - Working Group 10 on Utility Communication, the US Regular Member for the CIGRE Protection & Control study committee, and a registered Professional Engineer in the State of Ohio. Mark is the 2008 GE Edison award winner.

Larry Bekkedahl, is the VP of Engineering and Technical Services Bonneville Power Administration located in Vancouver, Washington.



Mr. Bekkedahl has 26 years of experience in the electric utility industry. His career has included work with Montana Power, PacifiCorp, Clark Public Utilities and now BPA. He graduated from Montana State University in 1984 with a Bachelor of Science degree in electrical engineering. Mr. Bekkedahl's experience also included 6 months in Japan with a utility exchange program. He has also developed generation in Southeast Asia and participated in the United States Agency for International Development (USAID) international utility exchanges through the United States Energy Association (USEA).

Dan Bowermaster is the Manager of PG&E's Electric & Natural Gas Vehicles, On-bill Financing, and Emerging Technologies teams.



Dan joined PG&E in 2008 as part of the MBA Leadership Program, and worked in PG&E's Engineering and Operations, Power Generation, Customer Care, and Corporate Strategy groups.

Prior to joining PG&E, Dan held a number of roles of increasing responsibility at Stryker Corporation, one of the world's leading medical technology companies. During his seven years at Stryker, Dan worked four different divisions in factories in Santa Clara, San Jose, Germany, San Diego, and Dallas. Dan worked as Production Supervisor for a team of 36 technicians in Silicon Valley; HR Representative in Germany; and, Operations Manager responsible for the production and quality of \$54M in shipments from the Dallas factory.

Dan holds a BS in Mechanical Engineering and a BA in International Relations from the University of California, Davis. In addition, Dan completed the Wharton-Lauder dual degree program at the University of Pennsylvania, earning both an MBA from Wharton and an MA in International Studies in 2008.

Merwin Brown is the Director of Electric Transmission Research at the California Institute for Energy and Environment, within the University of California Office of the President. He manages a team of professionals who develop and administer technology research and development for California's future electric transmission system. This work is largely funded by the California's Public Interest Energy Research Transmission Research Program at the Energy Commission. He also manages the Sacramento office for CIEE, which is headquartered in Oakland, CA.



Merwin Brown, Electric Grid Program Director, manages a team of experts at CIEE who are helping develop and commercialize new technologies for the modern electric grid needed to meet California's aggressive energy-policy goals. The team develops, administers, and conducts R&D programs for reliable, safe, affordable, and environmentally sound transmission and distribution systems.

Merwin's comprehensive knowledge of electric utilities and of new and emerging utility technologies is derived from 40 years of experience with firms such as Pacific Gas and Electric Company, Arizona Public Service, Pacific Northwest National Laboratory, and the National Renewable Energy Laboratory. He has managed private and public-interest technology R&D programs valued at up to \$50 million per year with groups as large as 100 scientists and engineers. He has managed individual R&D projects as large as \$20 million.

Merwin has extensive training and experience in strategic business planning and has held advisory positions for many electricity industry organizations. He has served as an Arizona Solar Energy Commissioner, on the Board of the American Council for an Energy Efficiency Economy, and with groups from the Electric Power Research Institute and the National Renewable Energy Laboratory.

He has numerous technical publications and presentations to his credit, and holds B.S. and Ph.D. degrees in nuclear engineering from Kansas State University. For additional bio material, refer to the CIEE's web site <http://uc-ciee.org/technical-experts/3/dpeople>

Christoph Brunner is president of it4power in Switzerland, a consulting company to the power industry.



He is Utility Industry professional with over 25 years of industry experience with both knowledge across several areas within the Utility Industry and of technologies from the Automation Industry.

He graduated as electrical engineer at the Swiss Federal Institute of Technology in 1983. He has worked as a project manager at ABB Switzerland Ltd in the business area Power Technology Products in Zurich / Switzerland where he was responsible for the process close communication architecture of the substation automation system.

Mr. Brunner is convener of the working group (WG) 10 of the IEC TC57 and member of WG 17, 18 and 19 of IEC TC57. He is senior member of IEEE-PES and IEEE-SA. He is active in several working groups of the IEEE-PSRC (Power Engineering Society – Relay Committee) and member of the PSRC main committee and the Communication Subcommittee. He is international advisor to the board of the UCA international users group.

Robert Cummings – is the NERC Director of System Analysis & Reliability Initiatives.



Mr. Cummings joined the NERC Staff in December 1996. Since that time, he has served in a number of capacities, as staff coordinator on several NERC subcommittees, working groups and task forces including the areas of system protection, reliability assessment, NERC/DOE data coordination, and support systems for reliability coordinators. His current position entails investigation of system disturbances, including near-misses, and dissemination of lessons learned to industry participants. He participated in the Western Electricity Coordinating Council (WECC) investigation of the Los Angeles blackout of September 12, 2005. Bob also serves a leadership role in the North American Synchrophasor Initiative (NASPI) and is involved in promoting the use of phasor measurements throughout North America, particularly the use of wide-area angular separation analysis for monitoring grid performance in real-time.

Bob was intimately involved in the investigation team of the 2003 blackout as a team leader with responsibilities in the sequence of events development, modeling and studies (power flow and dynamics analysis), and transmission/generation performance areas. He was a technical contributor to the U.S.–Canada Task Force Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations, dated April 2004, and the NERC Technical Analysis of the August 14, 2003, Blackout. Mr. Cummings has been instrumental in the development of the NERC Transaction Information System (tagging) and the Interchange Distribution Calculator (IDC). He has also been involved in the development of NERC’s Project Management Process and the technical side of the development of Electronic Scheduling / OASIS Phase II and many other NERC technical projects.

Mr. Cummings earned a Bachelor of Science Degree in Power System from Worcester Polytechnic Institute in Worcester, Massachusetts in 1975. From 1975 to 1981, Bob worked for Central Vermont Public Service Corporation in System Planning (both generation and transmission) after a training program that included the areas of System Planning, Distribution Engineering, Customer Services, Relay and Communications, Plant Accounting, and Division Distribution Management. From 1989-1996, Bob was the Manager of Engineering Services of East Central Reliability Coordination Agreement (ECAR) Region, and later as ECAR’s Manager of Transmission Service.

Mr. Cummings worked at Public Service Company of New Mexico (PNM) from 1981 to 1989, spending 5 years in Operations Engineering and 3 years in Transmission Planning. While at PNM, Bob had his first exposure to Regional activities, serving on a number of technical study groups of the WECC. Bob is a member of the IEEE and the Vermont Society of Engineers.

Dr. Aleksandar Dimitrovski works in R&D at the Oak Ridge National Laboratory, Oak Ridge TN.



Before joining ORNL he was with Schweitzer Engineering Laboratories and Washington State University in Pullman WA. He received his B.Sc. and Ph.D. in power engineering from the University Sts. Cyril & Methodius, Macedonia and M.Sc. in applied computer sciences from the University of Zagreb, Croatia. Before coming to the US, he was a tenured assistant professor at the University Sts. Cyril & Methodius. His subjects of interest include advanced computing techniques in power system analysis and simulation.

Emmanuel Duvelson is currently the Communications Product Marketing Director at RFL Electronics



Inc., a company that provides a wide range of communications and relaying products, application support and customized systems to the Electric Utilities, Oil and Gas markets, Railroad and Transportation industries, Government agencies and engineering consulting firms.

Emmanuel is a graduate of Boston University with a BSEE degree. After graduating, he worked for TERADYNE as a system Test Technician. In 1995 he joined RFL and has held numerous technical and sales positions, gaining extensive experience with telecommunications applications. He is a member of IEEE. Emmanuel not only spends his time managing the telecommunications product line but is also involved in the design of T1/E1, SONET/DSH and Ethernet Networks for the electric utility industry

Mark Freund has been involved in the energy sector for 30 years. His experience in electric generation included supporting the design, construction, operation, and decommissioning of commercial nuclear



power facilities. Mr. Freund has been a practitioner during the past 15 years focused on establishing information security controls.. He has provided services for high profile, multimillion dollar projects involving energy control and information systems. Mr. Freund is currently active with industry initiatives focused on smart grid security and possesses the following industry related certifications: ISM, CISSP, NSA - IAM, ITIL and is a Certified SCADA Security Architect. Mr. Freund holds a Bachelor of Science in Industrial Technology.

Dr. Jay Giri – IEEE Fellow is the Director, Power Systems Technology and Strategic Initiatives at AREVA T&D in Redmond, WA. In 1978, he and 11 others co-founded ESCA, which after a few mergers & acquisitions, in 2004, became part of AREVA T&D Inc. He was the original designer and implementer of the ESCA AGC and DTS power system simulation software. He has a Ph.D from Clarkson University, NY and a B.Tech from Indian Institute of Technology (IIT), Madras. He is an Affiliate Professor at the University of Washington. In 2002, Dr Giri was elected IEEE Fellow; citation:” For contributions to the design and implementation of power system control centers”.



Armando Guzmán, Senior IEEE Member, is the Research Engineering Manager at Schweitzer Engineering Laboratories (SEL) in Pullman, Washington. He has been with SEL since 1993.



Mr. Guzmán received his BSEE with honors from Guadalajara Autonomous University (UAG), Mexico, in 1979. He received a diploma in fiber-optics engineering from Monterrey Institute of Technology and Advanced Studies (ITESM), Mexico, in 1990, and his MSEE from University of Idaho, USA, in 2002. He served as regional supervisor of the Protection Department in the Western Transmission Region of the Federal Electricity Commission (FEC, the electrical utility company of Mexico) in Guadalajara, Mexico for 13 years. He has lectured at UAG in power system protection. Mr. Guman holds several patents in power system protection and metering. He is a senior member of IEEE and has authored and coauthored several technical papers.

Dr. Bryan J. Gwyn, Member IEEE, is currently Director of Protection Engineering in the Network Strategy Group of National Grid. Activities of the department include protection engineering and design, development of company wide protection standards, asset health, replacement strategies, disturbance analysis and operations & maintenance policies.



Bryan transitioned from the National Grid in United Kingdom and joined the US based headquarters for National Grid in 2001.

Dr. Gwyn represents National Grid and NPCC on several International Industry Committees including:

- NERC, System Protection & Control Subcommittee
- Northeast Power Coordinating Council (NPCC), Task Force on System Protection
- CIGRE Working Group B5.31 on the Management of Relay Settings
- IEEE Power & Energy Society - Power System Relay Committee Working Groups; Protection Redundancy and Functional Testing of Protection Systems

Dr. Gwyn has held several positions in the protection field, developing technical specifications and carrying out disturbance analysis on Transmission and Distribution networks, both in the US and UK. Other activities include Business Planning and R&D management.

Bryan Graduated from City University, London with focus in Power System Fault Analysis. Bryan is a Chartered Engineer and a member of the Institution of Engineering and Technology, and also a member of IEEE Power and Energy Society.

Richard Harada Richard Harada is a Senior Product Manager at RuggedCom managing the multi-service switching and routing platforms. Richard has over 12 years of experience in industrial networking communications and applications with previous work experience at Siemens Enterprise Networks and Psion Ltd. Richard is an Electronic Engineering Technologist and has a Bachelor of Science in Computer Science from York University in Toronto and is currently a member of the IEEE PSRC working group H7 that is defining the power profile for 1588 precision timing.



Gene Henneberg is a Staff Protection Engineer with NV Energy, Reno, NV.



Mr. Henneberg has over 30 years experience in electric utility engineering and operations. He is a member of the WECC Relay Work Group, Chair of the WECC Remedial Action Scheme Reliability Subcommittee and is active with the IEEE Power System Relaying Committee.

Dr. Mladen Kezunovic – IEEE Fellow is a Professor at the Department of Electrical and Computer Engineering at Texas A&M University (TAMU) and holds the Eugene E. Webb Professorship. Mr. Kezunovic received the Dipl. Ing. (Diploma-Ingenieur), M.S. and Ph.D. degrees in electrical engineering in 1974, 1977 and 1980, respectively. He has been with TAMU since 1986. He worked for Westinghouse Electric in the U.S.A. as a Systems Engineer on development of the first all-digital substation in the world during 1979-1980 and for Energoinvest Company in Europe as the Technical Leader for substation automation development during 1980-86. Dr. Kezunovic provided consulting services to over 35 utilities and vendors worldwide as the Principal of TLI, Inc. He is TAMU Site Director of PSerc.



Dr. Kezunovic has published more than 350 journal and conference papers, contributed to seven books or standards, and has given over 100 invited lectures, short courses and seminars around the world. He was elected a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) for his contribution to “Automated Fault Analysis” and is on IEEE’s Distinguished Speakers List. He is also a member of an International Organization for High Voltage Power Systems (CIGRE-Paris), and recipient of the Attwood Associate Award of the USNC of CIGRE. He is a registered Professional Engineer in the state of Texas.

Dr. Roger King - IEEE Senior Member, is the Director of the Center for Advanced Vehicular Systems Dr. King is a William L. Giles Distinguished Professor and the in the Bagley College of Engineering at Mississippi State University (MSU).



Roger received his BS from West Virginia University (1973) and his MS from the University of Pittsburgh (1978) in electrical engineering. He received his Ph.D. in engineering from the University of Wales – Cardiff (1988).

Roger began his career with Westinghouse Electric Corporation, but soon moved to the U.S. Bureau of Mines Pittsburgh Mining and Safety Research Center. Upon receiving his Ph.D. in 1988, he accepted a position in the Department of Electrical and Computer Engineering at Mississippi State University where he now holds the academic rank of William L. Giles Distinguished Professor. Dr. King also is an Honorary Professor at the Cardiff University in the United Kingdom.

Roger has received numerous awards for his research including the Department of Interior’s Meritorious Service Medal. Over the last 30 years, Dr. King has served in a variety of leadership roles within government and academia and has published approximately 200 papers and holds 4 patents.

Dr. Dmitry Kosterev - received his PhD degree in Electrical Engineering from Oregon State University in 1996. Dmitry is with Bonneville Power Administration, where his responsibilities include transmission planning, power system controls, power system modeling, power system performance analysis.

Currently, Dr.Kosterev is leading several R&D projects in BPA, including wide-area stability controls and wind power plant voltage controls.

Dr..Kosterev has led WECC Generator Testing Task Force through development, approval and implementation of WECC Generating Unit Model Validation Policy. He has chaired WECC Load Modeling Task Force since 2002 and is current chair of WECC Modeling and Validation Work Group.

Hal LaFlash - is the director of emerging clean technology policy in the energy procurement organization at Pacific Gas and Electric Company. His duties include assessing the state of technologies that will affect how PG&E fills its future resource needs, which includes understanding, evaluating, and supporting emerging renewable energy and other clean energy technologies.



Hal has been at PG&E for 30 years where he has held various positions in energy efficiency, non-utility generation, gas transportation, resource planning, and renewable energy policy. He also held positions at PG&E Corporation in corporate development and business planning.

Hal was a member of the Solar Task Force of the Western Governors Association's Clean and Diversified Energy Initiative; he co-authored "Hedging Carbon Risk: Protecting Customers and Shareholders from the Financial Risk Associated with Carbon Dioxide Emissions," which was published by the Electricity Journal; and he is currently a co-chair of the Utility Committee of the American Council on Renewable Energy, a member of the Executive Board of the California Biomass Collaborative, and a judge and member of the Board of Advisors for the California Clean Tech Open business plan competition;

Hal has a Bachelor of Science in Mechanical Engineering and a Masters in Business Administration.

Dr. Edwin Liu - IEEE Fellow Vice President of Strategy Initiatives and Executive Advisor has more than 25 years of experience in consulting, research, and development on power system analytics and integration, both in industry and academia. Throughout his career, he has been with universities, software vendors, utility and consulting companies - focusing on applying state-of-the-art technologies to energy utility and industry. His expertise is on smart grid, information integration, power system optimization, electricity market modeling, energy and emission management, automation, technology innovation, and business strategy.



Edwin received his BS degree in Electrical Engineering from National Taiwan University; the MS and PhD in Electrical Engineering and Computer Sciences, both from University of California, Berkeley.

Dr. Liu is an IEEE Fellow for his contributions to the development of state estimation and optimal power flows, and their integration in utility systems. He was the Chairman of the IEEE Computing and Analytical Methods Subcommittee. Dr. Liu was an advisor to the National Science Council, Taiwan. He serves as the industry advisor at the Energy Systems Research Center, University of Texas, and the visiting scholar at the Department of Electrical Engineering, Xi'an JiaoTong University. Before joined Quanta Technology, he has worked for Siemens, Pacific Gas and Electric Company, Bechtel, and was a member of the start-up team of Nexant.

Vahid Madani - IEEE Fellow, is a Principal Protection Engineer at Pacific Gas and Electric Co. (PG&E) with focus on Substation Integration & Automation, Wide-area System Integrity Protection, and Policies & Standards. Vahid has a Bachelor and Master of Science Degrees in Power Systems, is a Tau Beta Pi member, and a registered Electrical Engineer with more than 25 years of academic and utility experience and recipient of many honorary and distinguished citations, for his leadership, inventiveness and contributions to the power system industry and education. His Fellow citation is in recognition for innovations and leadership in power system protection, control for wide-area systems, and modular protection automation.



Mr. Madani has been a member of several investigative and restoration recovery task forces including the 1989 San Francisco and the 1994 Los Angeles Earthquakes, and the 1994–96 Western Disturbances. He has also received several PG&E awards for his creativeness and steering in Protection & Control and Remedial Action Schemes (RAS). He is currently implementing advanced applications in RAS and Disaster Recovery Systems.

Mr. Madani has various technical, advisory, and leadership roles in North America and internationally, and has contributed to the development of many advanced applications (Theory & Implementation) in System Protection and intelligent restoration. For a decade, He served as Chair of the WECC RAS Reliability Subcommittee and received the best Chair Person award for his leadership in the Remedial Action

Reliability Subcommittee two times. Mr. Madani currently Chairs the Performance Standards within the North American Synchrophasor Initiative (NASPI).

Mr. Madani is the author of more than 60 publications in refereed international journals in system automation, protection & control applications, and practical wide-area monitoring systems with advance warning and fast restorations. He is also the co-editor of the 2006 McGraw Hill year book of science technology, and the 2008 Edition of International Journal of Reliability and Safety (IJRS) for InderScience Publishing.

Professor Robin MacLaren - Psymetrix



Robin MacLaren has been involved in Transmission and Distribution Engineering for over 35 years. During his early career, he was a leader in Protection and Control in the UK, leading the ScottishPower Protection Design Group responsible for metering, protection and control in the vertically integrated utility. He chaired the UK protection Approval Panel and specialist IEE Professional Group on Protection Measurement and Control.

Robin led early work on system wide Transmission dynamic stability issues between Scotland and England, undertaking system wide tests, tuning Power System stabilisers and excitation systems and developing instrumentation and test techniques to measure and monitor system wide performance.

Moving into more general T&D Management in 1996 he became Chief Engineer for ScottishPower Transmission and Distribution, before moving to the West Coast of the US where he was Vice President at PacifiCorp and founder Chairman of RTO West. In 2001 he returned to the UK as the Managing Director (CEO) of the Transmission and Distribution business at ScottishPower. He retains a close interest in the business benefits of new technology, having been involved in both US and UK Rate Cases where the case had to be made both financially and technically.

Robin joined Psymetrix as their Chairman in 2007 and has been closely involved with the company development. He retains his hands-on engineering expertise, working with the Psymetrix team on system and generator testing in Iceland using synchrophasor systems for measurement, analysis, network management and monitoring.

He believes we will see increasing use of synchrophasors in control in the next few years, and with his protection background understands some of the challenges we face.

Dr. Meliopoulos (Sakis), **IEEE Fellow**, and the recipient of the 2005 IEEE Richard Harold Kaufmann Field award. His first professional association was with Western Electric (1971) in Atlanta, Georgia. In 1976, Sakis joined the Faculty of Electrical Engineering, Georgia Institute of Technology, where he is presently a full professor and active in teaching and research. His areas of expertise are modeling, analysis, control, and advanced instrumentation for monitoring and protection of power systems. He has directed numerous research projects which have resulted in advanced methods for load forecasting, security analysis, reliability, probabilistic production costing, optimal power flow, and operations scheduling.



Dr. Meliopoulos has pioneered several new analysis and design techniques for safety, protection and electromagnetic compatibility of electric power systems. Sakis is the leader in the development of the Harmonic Measurement System, which is based on GPS-synchronized measurements, and the principal inventor of the Smart Ground Multimeter, the Fault Distance Indicator, and the Open Conductor Detector. Presently, he is involved with projects dealing with the use of GPS synchronized measurement for system monitoring and protection and testing of relays and protection schemes.

Professor Meliopoulos is the author of three books, holds three patents, and has published over 200 technical papers. Sakis is a member of the Hellenic Society of Professional Engineering, the Sigma Xi, and Chairman of the Georgia Tech Protective Relaying Conference.

Paul Myrda is a Technical Executive with the Electric Power Research Institute working in Power Delivery and Utilization. He is responsible Transmission Smart Grid projects and is leading the development of the next generation monitoring related to synchrophasors and also advancing the implementation of IEC 61850 and Utility Common Information Model.



Paul has over 20 years of experience leading various technology implementations. His diverse background includes planning, engineering, information systems and project management. He has an MBA from Kellogg and MSEE and BSEE from Illinois Institute of Technology; President of Technology Management Association of Chicago; licensed professional engineer and a member of the IEEE and CIGRE.

He is also an avid woodworker for over 30 years primarily designing and building a variety of furniture pieces over the years. He enjoys all aspects of woodworking from computer aided design, construction including on the fly design changes, coming up with creative fixes to the occasional oops that seem to occur near the end of an almost finished piece, to the final finishing and delivery to its recipient.

Dr. Farnoosh Rahmatian is a Senior Director of Measurement Devices at Quanta Technology. He



has developed several techniques and devices for power system measurement, protection, and monitoring. Farnoosh was a co-founder of NxtPhase Corporation, developing and deploying innovative environmentally-friendly optical sensor technologies for accurate measurement of voltage and current in high-voltage AC and DC systems. Farnoosh has developed a number of advanced applications for protection and monitoring of the electric power grid and HV substation equipment using novel sensor technologies. He has traveled extensively and worked with a number of senior utility engineers and managers in more than 30 countries and 45 states.

Dr. Rahmatian has contributed to a number of IEEE, IEC, CIGRE, and CSA standards, guides, tutorials, and reports. Currently, he is the vice chair of IEEE/PES Power Systems Instrumentation and Measurement (PSIM) Committee, the chair of the IEEE working group on optical instrument transformers, a member of IEC working group on electronic instrument transformers, the secretary of CIGRE working group A3.15 working on non-conventional instrument transformers, a member of Systems Protection Subcommittee (C) of IEEE-PES-PSRC, and active in Performance and Standards Task Team (PSTT) of the North American Synchro Phasor Initiative (NASPI).

Dr. Rahmatian is a Senior Member of IEEE, has published over 50 articles in technical journals and conference proceedings, and holds 11 US patents. Farnoosh has received a number of awards, including an R&D 100 Award for the NXVCT Optical Voltage and Current Sensor, judged to be among the 100 most technologically significant new products of the year in 2002. Dr. Rahmatian's focus at Quanta Technology is on phasor measurement devices and systems as well as on-site energized testing of high-voltage substation equipment.

Damir Novosel, IEEE Fellow, is President of Quanta Technology and Energized Services. Damir has



over 28 years of experience working with electric utilities and vendors. He has developed and consulted on a number of products and methods to improve power system performance. Dr. Novosel has created and managed several reputable and successful organizations that developed innovative technology and industry best practices in various areas of power systems. Prior to joining Quanta Technology, he was President of T&D Consulting at KEMA in the US. He has also held various positions in ABB including Vice President of global product management for automation products.

His work in electrical power system monitoring, protection, control, and automation earned him international recognition and was elected IEEE Fellow. He presently holds 16 US and international patents. Damir published over 100 articles in Refereed Journals and Conference Proceedings in various areas of power systems. Damir is presently Vice President of the IEEE PES Technical Council and member of the IEEE PES Governing Board. Damir holds MSc and PhD degrees in electrical engineering from University of Zagreb, Croatia, and Mississippi State University, respectively.

Alison Silvertein works and lectures for government and private clients on issues including transmission and distribution, system reliability, energy efficiency, demand response, renewable energy development and the smart grid.



She is project manager for the North American SynchroPhasor Initiative, a joint effort between the electric industry, U.S. Department of Energy, and North American Electric Reliability Corporation to accelerate the adoption of synchrophasor technology to improve grid reliability. Silverstein supported U.S. DOE in the analysis and writing of the 2006 and 2009 National Transmission Congestion Studies and supports DOE in monitoring North America's interconnections' long-term system planning work. She also works for several private electric industry clients.

Silverstein serves on the board of the American Council for an Energy Efficient Economy and is a member emeritus of the Department of Energy's GridWise Architecture Council.

Silverstein worked from 2001 through 2004 as Senior Advisor to Chairman Pat Wood, III, at the Federal Energy Regulatory Commission, where she helped lead the U.S.-Canada investigation into the 2003 blackout and wrote the final investigation report. Before going to FERC, Silverstein worked for six years as advisor to Chairman Wood at the Public Utility Commission of Texas, where they implemented competition in Texas' wholesale electric market and brought retail competition to Texas' retail telephone and electric markets. She worked for PG&E for ten years, and spent five years as a consultant and civil servant in Washington DC.

Jonathan Sykes is the Manager of System Protection at Pacific Gas and Electric Company in Oakland California. Jonathan graduated from the University of Arizona in 1982, is a Professionally Licensed Electrical Engineer, and has over 26 years of engineering experience in System Protection. He is active on several committees in the Western Electric Coordinating Council and is Vice Chairman of the North American Electric Reliability Corporation System Protection and Control Subcommittee. Jonathan has authored and co-authored papers for conferences and publications and is an active member of IEEE and regularly contributes to the Power System Relay Committees. Jonathan has been involved in EHV protection and control for over 10 years and established standards in EHV relaying and SPS/RAS design and implementation. Jon has been active in NERC and WECC standards interpretation and development and is a subject matter expert in the interpretation of various protection and critical infrastructure related standards.



Eric Udren - Fellow IEEE – is executive Advisor Quanta Technology with more than 39 years of experience in design and application of protective relaying, control, and communications systems.



He received his BSEE from Michigan State University in 1969, MSEE degree from New Jersey Institute of Technology in 1981, and the Certificate of Post-Graduate Study from Cambridge University (UK) in 1978.

In 1969 he joined the Westinghouse Relay Division, where he developed software for the world's first computer-based relaying system. From 1978 to 1986, he supervised relaying and control software development for the EPRI-sponsored first development of a LAN-based integrated EHV substation protection and control system. In 1990, with ABB, he led the design of the first interface of a microprocessor protective relay to an optical current sensor for TVA. In 1996, he joined Eaton Electrical (Cutler-Hammer) in Pittsburgh, where he served as Engineering Manager for relays and metering. In 2004, Mr. Udren joined KEMA (US) as Senior Principal Consultant where he developed the technical strategy for some of the most progressive utility LAN-based substation protection and control upgrading programs using IEC 61850 and other data communications, including technical design for utility enterprise integration of substation information. In 2008, Mr. Udren joined Quanta Technology, LLC of Raleigh, NC as Executive Advisor, developing substation protection and control upgrading strategies for major North American utilities, relay application research and design, and new data communications applications. He maintains his office in Pittsburgh, PA.

Mr. Udren is a Fellow of IEEE, Member of the IEEE Power System Relaying Committee (PSRC), Chair of PSRC Standards Working Groups, and Vice Chair of the Relaying Communications Subcommittee. In 2001 and again in 2006, he received the PSRC Distinguished Service Award. He serves as Technical

Advisor to the US National Committee of IEC for TC 95, Measuring Relays. He also serves as a US Delegate to IEC TC 57 Working Group 10 responsible for IEC 61850. Eric serves on the NERC System Protection and Control Subcommittee, and the NERC Protection System Maintenance Standard Drafting Team. He has written and presented over 80 technical papers and chapters of books on relaying topics, and has taught courses on protection, control, communications, and integration. He holds 8 patents on relaying and power-system communications.

S. S. (Mani) Venkata – IEEE Fellow is a Affiliate Professor of Electrical Engineering at the University of Washington (UW), Seattle, Washington since January 2008. He is also President, Venkata Consulting Solutions Inc. and associated with KEMA Inc. as a subconsultant.



Prior to joining the UW, Dr. Venkata was Dean and Distinguished Professor of Wallace H. Coulter School of Engineering at Clarkson University, Potsdam, New York. He received his B.S.E.E and M.S.E.E. degrees from India, and his Ph.D. degree from the University of South Carolina, Columbia in 1971. He is a registered professional engineer in the states of Washington and West Virginia.

Prof. Venkata has conducted research, design and development work for the more than 20 utilities and power related industries for the past 39 years. Venkata has published and/or presented over 300 publications in refereed journals and conference proceedings, and a co-author of the book Introduction to Electric Energy Systems Prentice-Hall Publications, 1987.

Dr. Venkata is a Fellow of the IEEE. He was a member of the PES Executive Committee and Governing Board, Vice-President of Publications, member of the Finance Committee, the Long Range Planning Committee, and Technical Activities Advisory Board from 2004-2007.

In 1996 he received the Outstanding Power Engineering Educator Award from the IEEE Power Engineering Society. He also received the Third Millennium Award from the IEEE in 2000.



Pacific Gas and Electric Company, incorporated in California in 1905, is one of the largest combination natural gas and electric utilities in the United States. Based in San Francisco, the company is a wholly owned subsidiary of PG&E Corporation.

There are 21,000 employees who carry out Pacific Gas and Electric Company's primary business — the transmission and delivery of energy. The company provides natural gas and electric service to approximately 15 million people throughout a 70,000-square-mile service area in northern and central California.

PG&E customers include:

- **20,850 schools**
- **3,250 hospitals**
- **20,700 high-tech companies**
- **768 military facilities**

Pacific Gas and Electric Company and other utilities in the state are regulated by the California Public Utilities Commission. The CPUC was created by the state Legislature in 1911.

Fast Facts

- Service area stretches from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east.
- 935 Transmission and Distribution Substations
- More than 139,000 circuit miles of electric lines (60, 70, 115, 230, and 525kV).

- More than 70% of 500kV lines are compensated
- More than 45,800 miles of natural gas pipelines
- 5 million electric customer accounts.
- 4 million gas customer accounts.
- Peak System Load – 26.5 GWH

Environmental Commitment

Pacific Gas and Electric Company has long been recognized as an environmental leader by providing safe, economical and reliable products and services in a responsible and environmentally sensitive manner. Doing more so that our impact on the environment is less drives us to adopt new technologies, improve our environmental management practices, build strong ties with local communities, reach out to stakeholders to address challenges and contribute to the development of public policies that raise the bar for our industry. The Pacific Forest and Watershed Lands Stewardship Council was created in 2004 to oversee the implementation of the Land Conservation Commitment, wherein PG&E will either donate or create conservation easements to preserve and enhance over 140,000 acres of PG&E's watershed lands and 655 acres in the Carizzo Plains. The Pacific Forest and Watershed Lands Stewardship Council will also oversee the implementation of the Environmental Opportunity for Urban Youth Program, which will provide inner city children with wilderness experiences and new urban parks and recreation facilities.

Message from Chairman, CEO, President – Peter Darbee, February 26, 2009 - “What does it look like to be the leading utility? Exactly how do you define leading? Does leading mean the best? If so, best at what? How do we measure it? Who is the leader now?.....At a minimum, the vision should be a constant reminder of the mindset with which we all should approach our work. It should serve to help us keep our thinking broad, bold and attuned to what’s happening in the world around PG&E.”

The i-PCGRID Workshop Organizing Committee hopes we have fulfilled this vision.

Ron J Farquharson is Principal Consultant, Utility Automation EnerNex Corporation. Ron is currently working with the NIST Smart Grid Interoperability Panel (SGIP) team by serving as Technical Champion for two Priority Action Plans (PAPs). The PAP-12 team is developing a mapping between DNP and IEC 61850. The PAP-13 team is coordinating SDO efforts to harmonize current and future phasor measurement communications standards (IEEE C37.118 and IEC 61850) and to develop an IEEE power applications profile for IEEE Std 1588.



He has thirty years experience in the substation control, automation and monitoring fields. Prior to joining EnerNex, Ron worked for GE Energy/Harris/Westronic for twenty five years in the Substation Automation business. He has authored numerous papers, articles and courses on topics related to substation automation, protocols, monitoring & diagnostics, integration and communications.

Ron is a Senior Member of the IEEE with the Power Engineering Society, Substations Committee and the IEEE Standards Association. Ron also serves on the Advisory Committee for DistribuTECH.

Charles Newton is the Founder of Newton-Evans Research Co. Chuck received his MBA in Marketing Research from Loyola University in Maryland and an undergraduate degree in Economics from Fordham University in New York City. Chuck is a graduate of the U.S. Army Non-Commissioned Officers Academy and was involved with first-generation deployment and operation of computer-based SCADA technology in the mid-1960's.



Prior to launching Newton-Evans Research in 1978, Chuck was a product planning manager for five years with GE and for five prior years was an OCR product manager with Control Data Corporation. Newton-Evans is a leading source of technical market data and usage trend information on components of the evolving smart grid and T&D infrastructure.

Professional memberships include CIGRE, IEEE PES, ENTELEC, UTC, CIRED, AMA, CASRO and others.

Mahendra Patel is a Senior Engineer, Applied Solutions at PJM. He participates in efforts to identify, evaluate and develop advanced solutions to help PJM succeed in its core mission. Some of his areas of focus are; SynchroPhasor Technology, Transmission System Reliability, Voltage Stability, Load Modeling, Detection of Cascading Possibilities, Adaptive Islanding and other mitigation methods.

Prior to PJM, he was a consulting engineer in the Transmission Policy Department of Allegheny Power.

Mr. Patel has 38 years of electric power system experience, mainly in Transmission Planning, Transmission Technologies, System Dynamics and Voltage Stability. He has received BSEE from S.P. University in India, MSEE from West Virginia University and MBA from University of Pittsburgh.

Mr. Patel has served on several NERC Standards Drafting Teams. He is a Senior Member of the IEEE and a member of CIGRE. He is a member of NASPI, and co-chairs the Planning Implementation Task Team.

Dr Ray Zhang has been working with National Grid, UK since 1996, specialized in Power System Protection, Control and Automation. He is managing a special project to develop a new Architecture of Substation Secondary Systems using IEC61850 (AS3). Ray was born in Harbin, P R China. He completed his first degree and MSC course in China prior to his PhD study on Power System Voltage Stability at the University of Strathclyde in Scotland.



Dr Zhang is a Chartered Engineer, member of Institution of Engineering and Technology, UK. He is actively involved in CIGRE activities, currently regular member of several working groups including WG B3-10 "Primary/Secondary System Interface Modelling...", WG B5-24 "Protection Requirements on Transient Response of V&I Digital Acquisition Chain", and WG B5-27 "Implications and Benefits of Standardized Protection & Control Schemes".

Srdjan Skok (IEEE SM'97, M'05) was born in Zagreb, Republic of Croatia, 1972. He received the B.Sc. degree in electric power engineering from the Faculty of Electrical Engineering and Computing, University of Zagreb, Zagreb, Croatia in 1995, and the M.Sc. and Ph.D. degree in electrical engineering from the same University in 2000 and 2004 respectively.



Srdjan Skok has been with the Department of Power Systems of the Faculty of Engineering, University of Rijeka, since 2008, as a Assistant Peofessor. He is giving courses in diploma study: "Power System Protection", "Power System Control", "Power System Substations", and "Power System in Maritime" as well as "Power System Automation and Protection", in postgraduate courses. He was a leader of successful scientific project "Wide Area Monitoring, Protection and Control of Power System in Deregulated and Liberalized Energy Market" that results with new method of Power System Monitoring implemented in the Croatian Transmission System Operator Utility. Currently he is a leader of the new scientific project founded by Crotian Ministry of Science and Education and Croatian Power Utility entitled "Intelligent Systems For Power Transmission Grid". Srdjan Skok is author of two books ("Uninterruptible Power Supplies" and "Auxiliary DC Installations") and more than 40 journal and conference articles. Srdjan Skok has very successful collaboration with subjects from industry on many expert studies.