NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Improving Human Performance on the Grid

A conference and workshop on improving human performance and increasing reliability on the bulk power system

March 26 – March 28, 2013

Speaker Biographies (in order of Presentation)

Ben McMillan

Ben McMillan joined NERC staff on June 20, 2011 as a Risk Analysis Engineer. Prior to this, Ben spent time in the manufacturing industry, working in the fields of quality and process improvement, as the Division Quality Manager. A naval officer for 20+ years, he served in the surface warfare and nuclear power community, certified as a Naval Nuclear Engineer. Additionally he held positions in the operational testing of weapons and command /control systems. He holds a Bachelor of Science in Mathematics from the United States Naval Academy and a Master of Engineering Management degree from Old Dominion University.

A Senior Member of the American Society for Quality (ASQ), Ben holds certifications from ASQ as a Quality Engineer (CQE), Reliability Engineer (CRE), Quality Auditor (CQA) and Manager of Quality/Organizational Excellence (CMQ/OE). He is also a Six Sigma Black Belt, and has been teaching Root Cause Analysis for 4 years, having developed the course for NERC as well as his previous employer.

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Jule Tate

Jule Tate is the Manager Events Analysis in the Reliability Risk Management Group at NERC. Jule joined NERC in April 2008 and is currently responsible for managing NERC activities for analyzing Bulk Power System (BPS) events to identify cause(s), risk to reliability and corrective actions. In this role, he shares this information with the industry to promote learning and prevent reoccurrence of events to assure continuous improvement of operational performance.

Prior to joining NERC, Jule was employed by Progress Energy for over 12 years where he held several positions in Power System Operations. As the Manager, Power System Operations Training Jule was responsible for the System Operator Initial and Continuing training programs. Additionally he was responsible for training compliance with applicable NERC standards and other regulatory guidance and the testing, activation, and operation of Carolinas and Florida's backup energy control centers. As the Supervisor, Power System Operations Jule supervised control room operations of all generation and transmission resources in producing and delivering power to both retail and wholesale customers. Additional responsibilities included short-term planning, load

forecasting, unit commitment, reserve planning, transmission system reliability, coordinating unplanned transmission outages. As a qualified Progress Energy System Operator Jule worked on shift in the control room operating generation resources, coordinating interchange schedules, issuing transmission switching instructions, coordinating unplanned transmission outages, and evaluating real time contingency analysis and mitigating the constraints.

Jule served in the US Coast Guard for five years and was accountable for electrical maintenance and repairs to various lighthouses, was a qualified Coxswain and Boarding Officer, and provided search and rescue operations on the coast of North Carolina.

Jule holds a Bachelor of Science degree in Electrical Engineering from North Carolina State University and has been a NERC Certified System Operator at the highest level since 1998.

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Dr. James Merlo

James Merlo is the Associate Director of Human Performance in the Reliability Risk Management Group at NERC. Joining NERC in July 2011, James leads the electric reliability organization's efforts to assess the industry status and needs with regard to human performance challenges affecting bulk power system reliability. In this role, he identifies opportunities and methods for improvement based on proven methods from other industries, and develops and leads an industry-wide program to improve human performance components of bulk power system reliability.

James served in a variety of leadership roles in the US Army including combat tours in Desert Storm and Operation Iraqi Freedom. Significant positions include: Deputy Brigade Commander in Baghdad, Iraq 2004-2005 and as an assistant professor and program director at the United States Military Academy.

James has his B.S. in Human Factors Psychology from West Point, his M.S. in Engineering Psychology from the University of Illinois and his PhD in Applied Experimental and Human Factors Psychology from the University of Central Florida. He is the author of over 50 publications and book chapters on the subjects of human factors engineering and human performance.

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Dr. Patrick J. Sweeney

Patrick J. Sweeney is the Director of Leadership, Character, and Business Ethics Initiatives at the School of Business, Wake Forest University. He recently retired from the United States Army as a Colonel with over 29 and half years of leadership experience. The past six years, he served as the Deputy Head, Acting Head, and Director of the Eisenhower Leader Development Program in the Department of Behavioral Sciences and Leadership at the United States Military Academy in West Point, New York. In these roles, he: led and developed 41 faculty members; oversaw the behavioral sciences and leadership education for 4400 cadets; and managed the graduate program, a joint venture with Teachers College, Columbia University, that educated and prepared 25 Captains and Majors (middle level managers) per year to serve as the cadets' primary leader developers. Furthermore, Pat played an instrumental role in refining and improving West Point's leader development system. He served in tactical assignments worldwide, commanded 3rd Battalion, 320 Field Artillery, 101st Airborne Division (550 person organization), and served with the 101st during Operation Iraqi Freedom I. Pat

holds a Ph.D. and Master of Arts in Social Psychology from the University of North Carolina at Chapel Hill and a Master in Military Arts and Science from the U.S. Army Command General Staff College. He has published across an array of academic and military venues to include: *American Psychologist*, *Journal of Applied Social Psychology*, *Journal of Positive Psychology*, *Journal of Student Development*, *Applied Psychology: An International Review, and various professional military journals.* His research interests center on leader, leadership, and organization development for dangerous contexts. Current research projects include longitudinal studies exploring: trust and cohesion development in organizations; enhancing group members' resilience to the adversities of dangerous contexts, and leader development throughout a career. Pat recently led a team of 54 scholars and practitioners to produce a book entitled*, Leadership in Dangerous Situations: A Handbook for the Armed Forces, Emergency Services, and First Responders.*

Earl Carnes

W. Earl Carnes' experience spans 39 years working with complex organizations performing hazardous, critical scientific and technical operations. He is a Sr. Advisor for the U.S. Department of Energy's Office of Health, Safety and Security and the Department's Liaison with the Institute of Nuclear Power Operations (INPO). He has served DOE in various oversight and policy positions for 22 years. Mr. Carnes prior affiliations included 17 years in commercial nuclear power with INPO, as a management consultant working with U.S. and Canadian nuclear plants, and with a nuclear operating utility. Prior to entering the nuclear industry he taught and conducted academic research.

Earl established the DOE Human Performance initiative; developed the DOE Human Performance Handbook; and contributed to numerous DOE & international directives and technical documents on safety management. He engages with government agencies such as the National Transportation Safety Board, the U.S. Chemical Safety Board, the Nuclear Regulatory Commission and the International Atomic Energy Agency; with private sector organizations such as the Joint Commission for health care accreditation, the North American Electric Reliability Corporation; the North American Transmission Forum; and the academic community.

Mr. Carnes academic training includes degrees and certificates in chemistry; social sciences; engineering management; nuclear, chemical & biological emergency management; and Human Performance Improvement. Earl is an associate of the Center for Catastrophic Risk Management at the University of California Berkeley and a member of the INPO Safety Culture Advisory Group.

Michael Moon

Michael (Mike) Moon joined NERC in June 2009 and is currently the Senior Director of Reliability Risk Management. He came to NERC after a 26 year career as an Army engineer; in the later part of his career he specialized in energy, environment and infrastructure. Significant positions include; Director of Electrical Sector Development in Baghdad, Iraq 2007-2008, managing the US reconstruction effort of the Iraqi grid; generation, transmission, distribution, sustainment and maintenance, and capacity development; and Infrastructure Engineer for the US European Command in Stuttgart, Germany, 2003-2005, managing new construction and sustainment, restoration and modernization of existing facilities

for the command's 500 plus installations across Europe.

Mike earned a masters degree in National Security Studies from the U.S. Army War College and a bachelor's degree in Applied Mathematics from Longwood University. He is married to his college sweetheart Laura, and they have two children; Matthew and Katie.

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Gerry Cauley

Gerry W. Cauley was named President and Chief Executive Officer of the North American Electric Reliability Corporation (NERC) in November 2009 and assumed the role in January 2010.

Mr. Cauley is responsible for overseeing NERC's mission to ensure the reliability of the North American bulk power system. As President and CEO, Mr. Cauley leads key programs affecting over 1900 bulk power system owners, operators, and users, including standards and training, critical infrastructure, risk analysis, compliance monitoring, enforcement, situation awareness, reliability assessment, and government relations. Mr. Cauley also oversees the operation of eight regional entities engaged in implementation of delegated responsibilities.

From 2007 to 2009, Mr. Cauley served as President and Chief Executive Officer of the SERC Reliability Corporation, a reliability region covering 16 states in the southeastern and central United States. During this time he established new programs for monitoring and enforcing compliance with mandatory standards, developed training and educational programs, and a program to track reliability recommendations.

Prior to his CEO career, Mr. Cauley served as Vice President and Director of Standards at NERC and was instrumental in preparing NERC's application to become the ERO. He spearheaded the development of an initial set of standards to ensure the reliability of the bulk power system in North America. Mr. Cauley was also a lead investigator of the August 2003 Northeast blackout and coordinated the NERC Y2k program, supervising the reporting and readiness of 3,100 electric organizations in the United States and Canada.

Additionally, Mr. Cauley has served in various positions of leadership during his career, including program manager of grid operations and planning at the Electric Power Research Institute, training consultant for electric system operations, nuclear and fossil plant operations, substations, and distribution. He also served as an officer in the U.S. Army Corps of Engineers.

Mr. Cauley has a bachelor's degree from the U.S. Military Academy at West Point, a master's degree from the University of Maryland in nuclear engineering, and a master's degree in business administration from Loyola College - Baltimore. Mr. Cauley is a registered Professional Engineer in the Commonwealth of Virginia.

Dr. Chong Chiu

Dr. Chong Chiu graduated from MIT's Nuclear Engineering Department with a Ph.D. (1977) and a M.S. degree (1976). He had a grade point average of 5.0, highest achievable at MIT. His Ph.D. thesis was performed at the Mechanical Engineering Department under Professors Warren Rohsenow and Neil Todreas. He taught MIT Summer Safety courses on prevention of programmatic and organizational failures, human performance problems, equipment failures, and safety leadership from 2000-2006. Since 1977 he has led more than 100 high-profile investigations, as well as participating in more than 5,000 in-depth

investigations. He currently devotes his time to refining PII's Error-Free℠ technology.

Achievements

Dr. Chiu worked for ABB-CE from 1977 to 1985 as a manager for safety system design. Among his achievements, he successfully completed the design of the first generation of digital protection and monitoring systems at ABB-CE (COLSS/CPC). These types of systems have been widely used by all later designs and the advanced reactors.

In 1985, he joined SCE (Southern California Edison) as the Assistant Technical Manager. He then became the Safety Engineering Manager in 1988. He led a task force to help San Onofre Nuclear Station (3 units) reduce operating events to near zero; a record that lasted about 10 years.

Dr. Chiu founded FPI International (currently Performance Improvement International) in 1987 with the sole mission to improve safety and performance by preventing failures through root cause analysis, management consultation and training. The formation of this company was endorsed by SCE senior management due to its strong research orientation in failure prevention through root cause analysis. His research, case studies, and seminars at Performance Improvement International (PII) and FPI International have covered three types of failures:

- Human Errors
- Equipment Failures
- Organizational/Programmatic and Executive Leadership Failures

PII's current endeavors focus on establishing The Error-Free Zone℠ and The Failure-Free Zone℠ for its forward-looking clients.

Over the past 25 years, he has achieved the following:

- He has led over a hundred research projects, provided consultation support and conducted training seminars funded by the power industry to help reduce safety problems related to human errors and equipment failures.
- Since 1987, he has helped establish component root cause analysis programs at more than 86 power plants worldwide, as well as in many other industries.
- Since 1987, he has been called upon by many companies to solve urgent equipment failures. After his findings of the root causes and implementing corrective actions, there has been no recurrence of the initial problem. The total number of cases solved by Dr. Chiu and his PII team from 1987 through 2012 is more than 5,000 to date.
- Since 1987, he has delivered seminars on how to solve human error (including work injury) problems and helped many industries and organizations to achieve the highest safety performance possible. His seminars in human error reduction have been used by many organizations worldwide as a means to improve safety performance.
- He developed a comprehensive quantitative method to assess work process failure rate. The method has been used at both nuclear and non-nuclear industries for work process safety assessments.
- From 2003 to 2009, he served on the Senior Nuclear Safety Oversight Board of China's Daya Bay Nuclear Management Company.
- Since 1987, he has given seminars at the NRC and DOE (US Government) on human error reduction and O&P root cause analysis (NRC Region IV and Region II). More than 500 NRC staff members have attended Dr. Chiu's seminars.
- American Nuclear Society Fellow since 1994

Dr. Chiu has published more than 50 technical papers in the areas of management and human error reduction, integrated approaches to

prevention, detection and correction, equipment performance improvement, and safety culture improvement. His professional interest throughout his career is to improve safety through design improvement and root cause analysis. He has authored two books, "Root Cause Guidebook" and "Failure Diagnostic Guidebook", both of which are in circulation with over 12,500 copies used worldwide.

Daniel J. Tobin

Dan Tobin has worked for BGE for 25 years and is currently a supervisor in the Relay & Control Unit, which is part of System Protection & Automation (SPA) Department. Dan has worked in SPA for 18 years. Prior to that, he spent seven years in Transmission & Distribution Operations as an operations analyst and NERC-certified (RC) system operator. Dan's experience with human performance and error prevention concepts has allowed him to lead human performance improvement initiatives both within System Protection & Automation and throughout BGE.

Rodney Krause

Rodney Krause has worked for over 21 years with the Bonneville Power Administration. He completed his substation operator apprenticeship in 1995. During his time with Bonneville Power he has worked in the field as a journeyman substation operator, and a chief operator. He spent eight years in the technical training center as a substation operations instructor and apprenticeship coordinator. He also served details as the supervisor of apprenticeships and manager of technical training before moving into his current position as a substation operations specialist in transmission system operations.

Dr. Jake J. Mazulewicz

Jake Mazulewicz serves as Dominion Virginia Power's Human Performance Specialist. He focuses on designing and leading interactive Human Performance cases and classes.

He served as a Senior Instructional Designer, and created interactive training courseware for Distribution and Transmission Linemen, Substation Electricians, Designers and other technical specialists.

He is a former College Professor who taught Organizational Behavior, and Leadership at Bentley University near Boston. He earned his Ph.D. in Education from the University of Virginia. For four years he led Outdoor Experiential Learning courses for corporate clients. He is a former Firefighter, EMT, and Paratrooper.

Robert D. Schwermann

Robert D. Schwermann is currently a Senior Operations Specialist, Human Performance at PG&E. Bob has worked in the energy industry for over 38 years and has a broad pioneering base of knowledge and experience in both operations and merchant functions including Power System Scheduling, Trading, Transmission and Distribution Operations, and Hydro and Substation Operations. He is presently Chair of the WECC Human Performance work group at WECC and Vice-Chair of the North American Transmission Forum Human Performance WG.

Bob is a past member of the NERC Standards Committee and the Interchange Subcommittee. His merchant involvement was as a member of the

NAESB Board of Directors and Executive Committee and he also chaired the NAESB Seams Subcommittee and the Interpretations Subcommittee. Bob served as Chair of the Western Electricity Coordinating Council's (WECC) Market Interface Committee and is a past chair of the Market Issues Subcommittee and the Interchange Scheduling and Accounting Subcommittee. Bob earned his Bachelor of Arts degree from California State University-Chico and is a Vietnam Veteran.

Tom Neary

Tom Neary is the CEO and Co-Founder of OpCon Technologies, Inc. Since 2004 Tom has been helping companies to rapidly transfer operational knowledge in order to improve operational control and reliability. Tom is one of several leaders to pioneer the use of self made or user generated video procedures in order to create new collaboration pathways in field operations teams. Tom led the development of KnowledgeKeeper and then KnowledgeKeeper Mobile as the first mobile app for quick, self capture of video procedures and equipment changes made in the field. Tom also works with organizations to apply the practical use of human performance technologies in order to mitigate risk and reduce mis-operations.

Prior to founding OpCon, Tom designed and installed industrial process control systems for 17 years.

Tom holds a bachelor's degree in Chemical Engineering from University of New Hampshire and a Master's degree in Chemical Engineering from Tulane University in New Orleans, LA. Tom is a Registered Professional Engineer in the state of California.

Brian Baskette

Brian Baskette is the Principal Program Manager with the Organizational and Human Performance Department at the Institute of Nuclear Power Operations (INPO) in Atlanta, GA. He has over 29 years of experience within the nuclear and energy sectors. He provides consultation, facilitation, and training to improve human performance, leader and team effectiveness, and organizational performance. Brian has assisted over 100 nuclear, electric generating, fuel processing, corporate utility, government, and research facilities throughout North America and abroad. He has worked at three nuclear power plants and at a corporate utility in addition to his experience at INPO. Brian holds a Master's Degree in Industrial/ Organizational Psychology, a Certificate in Organization Development, and Certification as a Professional Facilitator. He is a life-long learner and enjoys traveling, fishing, playing the drums, and spending time in the mountains with his new wife.

David W. Bowman

David Bowman has 22 years of industrial experience with a strong background in Safety and Plant Operations.

David led the Human Performance effort at RiverBend Nuclear Station from 2004-2007 and has carried that experience over into the Distribution and Transmission business units of Entergy. David is firm believer that companies can and will improve their overall performance if they enhance their behavioral culture.

Tom Harvey, CSP

Tom Harvey, CSP, is President and Owner of Allied Safety Associates, LLC, a safety, health, and environmental consulting firm he founded in 2000. A sampling of successful projects Tom has recently led includes:

- Safety Leadership and Human/Systems Performance development and training for major utility, pharmaceutical, petrochemical, and manufacturing companies for over 1500 leaders.
- NFPA 70E program development, training and full implementation for nuclear fuels, construction, and manufacturing facilities.
- Injury and event Root Cause Analyses for scores of incidents, from complex fatalities to high-potential near misses, that identifies and improves upon systemic failures and human performance.
- Train more than 1650 employees at all plant levels on Safety Excellence, and facilitated implementation at four major chemical company facilities.
- Facilitate the preparation of tape manufacturers for industry-wide certification to HSE regulatory and best-practice standards.
- Developed and is featured in four best-selling safety videos on safety leadership, accident investigation, safety feedback, and safety decision making that aligns with human nature.

Tom received a BS degree in Safety and Health from Louisiana State University, and began a 20 year career with Allied Chemical/AlliedSignal, a Fortune 50 company in the petrochemical and manufacturing industries, where he was a trouble-shooting and problem-solving specialist.

He obtained his Certified Safety Professional designation by examination (CSP #9404) in 1990.

In his spare time, Tom is a ski instructor, splitting his time between Colorado and South Carolina enjoying his family and the great outdoors.

Donovan Guilbeau

Donovan Guilbeau has spent the last 27 years working in the Utility Management industry as both a contractor and investor owned Utility Manager along the Gulf Coast from Texas to Florida. His leadership opportunities have included ownership of his own consulting business as well as Vice-President/ Senior Partner positions with national companies. As Manager of Safety Delivery for a Fortune 500 Utility Company responsible for over 4,000 employees, Donovan specialized in Safety Leadership Development and Human Performance Principles with particular emphasis on effective field applications. Donovan is currently the Director of Human Performance for the Southern Electric Corporation, a professional Utility Power Line Construction/Maintenance Company located in Flowood, MS.

Donovan also is chairman of the Entergy Contractor Safety Advisory Board Human Performance Subcommittee.

- Bachelor of Science Degree in Forest Management, Louisiana State University 1985
- Division Manager Trees Inc.
- Vice-President Asplundh Tree Expert Co.
- President/Owner of Compass Consultants
- System Vegetation Manager Entergy Transmission
- Manager of Safety Delivery Entergy Corporation
- Director of Human Performance Southern Electric Corporation

Donovan enjoys spending time with family and friends and the great out of doors. He and his wife Chere' have five children and 3 grandchildren.

Dr. Sharan Campleman

Sharan Campleman is a Senior Project Manager and Environmental Health Scientist at the Electric Power Research Institute (EPRI) in Palo Alto, California. Sharan manages EPRI's Occupational Health and Safety Research Program located in the Institute's Environment Sector including oversight of the sector specific occupational injury and illness surveillance and research database; and, development of an industry-specific job exposure database. Recently, the program has developed an Interest Group for Worker Safety Research to serve as a collaborative research forum for the electric power sector. In addition, as a Diplomat of the the American Board of Toxicology, she applies her expertise in cross sector research in the area of multimedia toxics, focusing on the health effects of trace metals and organics; assessing the effects of combined chemical exposures; and developing and utilizing biologically based models for quantifying risk at low exposure levels.

Prior to joining EPRI in 2008, Sharan served as a Senior Study Director and Senior Medical Information Specialist in the Health Studies Sector at Westat in Rockville, Maryland. She supported a range of clinical, surveillance and population-based studies for both governmental and commercial clients. Sharan's experience in public health research and surveillance also includes eight years as a Principal Investigator, Cancer Epidemiologist, and Certified Tumor Registrar with the Public Health Institute/California Cancer Registry.

Sharan holds a Master of Public Health degree and a doctorate in Environmental Health Sciences from the University of California at Berkeley. As a post-doctorate, she served as an Epidemiology Fellow through the California Department of Health Services with an interagency assignment to the Air Toxicology and Epidemiology Section, Office of Environmental Health Hazard Assessment at the California Environmental Protection Agency. She participates in numerous professional organizations, including the American Society of Safety Engineers, the Society of Toxicology, and the Society for Risk Analysis. In late 2012, Sharan was named to serve on the U.S. Environmental Protection Agency's Advisory Panel on EPA's Report on the Environment.

LD Holland

L.D. Holland has over thirty-two years of experience within the electrical utility industry, including the nuclear electrical generation side of the industry.

L.D. is a qualified:

- Human Performance Management Consultant
- Total Quality Management Certified Consultant
- PII Certified Human Error Reduction Instructor
- INPO Certified Human Performance Fundamentals Facilitator
- Duke Energy Nuclear Accredited Instructor

In 1995 L.D. began developing leadership case studies based on real life situations to highlight and define essential human performance and leadership behaviors. He believes that Human Performance can focus management and worker on the importance of the interdependence between *prevention*, *detection*, *and the correction of human errors within the workplace.* These case studies have been used throughout the country to promote and develop these behaviors for the purpose of improving utility performance. L.D. has provided these presentations throughout the electrical industry including *Alabama Power,*

Bonneville Power Administration, CAISO, Con Edison of New York, EPRI, Imperial Irrigation, MidWest ISO, Mississippi Power, Portland General Electric, and WMECO.

Mr. Holland has also done extensive research and provided lectures on human performance issues of how leaders *(management and workers)* can adequately address demographic challenges within the workplace; diverse work groups of today, such as, traditionalists, baby-boomers, generations X'ers and millenials.

During his years with the utilities, he has served as:

- I&C Technician (Westinghouse Certified)
- I&C Supervisor
- Qualified ISS Plant Systems Instructor
- Qualified Classroom and Simulator Instructor - Operations and I&C
- INPO E&A and Training Accreditation Auditor
- Nuclear Site Human Performance Manager

In addition to these qualifications and experiences L.D. is also a pilot instructor, pilot, motorcycle safety instructor and enthusiast, FATHER, and HUSBAND.

Allen D. Schriver

Allen Schriver joined NextEra Energy in 2008. Allen is currently the Power Generation Division General Manager of Compliance. With over 27 years of experience in the industry, he has held positions of operations superintendent and plant manager at various large hydroelectric plants where he was accountable for the operation and maintenance of both plant generation and bulk power transmission facilities. Allen is currently the acting Chair of the North American Generator Forum as he and the Transition Team continue to develop the Forum into a non-profit corporation.

He holds a Bachelor of Science in Electrical Engineering from The Pennsylvania State University and a Master of Science in Electrical and Computer Engineering from the University of Massachusetts. Allen is also a Registered Professional Engineer and a Six Sigma Green Belt.

Ron Fenex

Ron Fenex is the Energy Delivery Training Manager and has been with the Arizona Public Service Company for 32 years. Ron has worked in Fossil Generation, Nuclear Generation and the Transmission & Distribution areas during his career at APS.

Ron started his career in operations and since that time has has worked extensively in the development areas of Corrective Action Programs, Human Performance Improvement (HPI), Nuclear Safety Culture and other associated training programs.

A strong believer and advocate for HPI, Ron currently serves as the WECC Human Performance Working Group Vice Chairman.

Ron continues to look for new and innovative ways to teach and anchor HPI within current and newly developed training programs for both operators and electrical field workers.

Ron is a graduate of Ottawa University and holds degrees in Communication and Human Resources/Business Administration.

Jim Morrison

James Morrison is a Consultant at Healthcare Performance Improvement (HPI). HPI is a consulting firm that specializes in improving human performance in complex systems using evidence based methods derived from high risk industries. Jim is a former US Coast Guard officer with 31 years service. He served in Command Afloat, Operations Afloat, Operational Test Director, and Intelligence Liaison positions. Serving on the USCG Headquarters Incident Management Team, Jim was key in coordinating the nationwide USCG operational response to hurricanes Katrina and Rita. He has led numerous event analysis teams responsible for identifying error precursors, flawed defenses, active human errors, and latent system weaknesses**,** along with proposing effective, durable corrective actions. Prior to joining HPI, Jim completed an 18-month assignment as an error reduction, just culture, and event analysis subject matter expert for the largest electrical power generation company in Texas.

Tony Muschara

Principal Consultant and Owner, Muschara Error Management Consulting, LLC, specializing in human error risk management in high-hazard, industrialized facilities; Recent clients include: General Electric, Amgen, First Energy, Bruce Power, and PPL EU, U.S. Department of Energy.

Purpose: Helping managers and leaders of high-hazard facilities protect people, products, and property from the human element by providing comprehensive and practical error management applications developed from leading-edge research and experience, while honoring God and others through Wisdom, Integrity, and Love

Over **35 years experience** in consulting, training, and management positions in commercial and military nuclear power operations

Authored numerous **human performance guidelines and manuals** for the nuclear power industry while employed by the *Institute of Nuclear Power Operations* (INPO) (22 years) in Atlanta, Georgia; several documents adopted by the U.S. Department of Energy and the International Atomic Energy Agency (IAEA)

A **Certified Performance Technologist** (CPT) awarded by the *International Society for Performance Improvement* (ISPI); considered a niche expert and specialist in the field of human error management

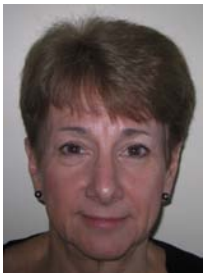
Qualified as a **senior reactor operator** (SRO) as a control room simulator instructor at *Farley Nuclear Plant*, while employed by *Westinghouse Electric Corporation*

Earned a Masters in Business Administration (**MBA**) from *Kennesaw State University* near Atlanta, Georgia

Received a bachelors of science degree in mechanical engineering from the *U.S. Naval Academy*, served in the *U.S. Submarine Service* 25 years (active and reserve), Qualified in Submarines, and qualified as Engineer of Naval Nuclear Propulsion Plants; retired Captain, USNR-Ret.

Married to his best friend, **Pam**, for 35 years, three children, and two grandchildren; lives near Atlanta, GA; enjoys hiking alpine trails in the Rocky Mountains

Dr. Sonja B. Haber



Sonja Haber, President and Executive Consultant of Human Performance Analysis Corporation, has been conducting work in the area of human performance analysis for over 30 years. For the last 25 years Dr. Haber's work has been primarily in the assessment and evaluation of safety culture in high reliability organizations, with a strong emphasis on the nuclear industry. She has been extensively involved in conducting fieldwork for the U.S. Nuclear Regulatory Commission, the U.S. Department of Energy, the Canadian Nuclear Safety Commission, the Spanish Nuclear Industry, and the International Atomic Energy Agency. She has also been conducting safety culture evaluations in various nuclear facilities, including the Davis-Besse Nuclear Power Station, during and after their head outage, the Vandellos Nuclear Power Plant in Spain after their pipe break, the Asco Nuclear Power Plant in Spain after their radioactive particle release, and most recently many U.S.plants that are under enhanced regulatory oversight. In addition Sonja has conducted safety culture assessments in different industries, including underground coal mines in the U.S. Most recently Dr. Haber has been supporting the Department of Energy (DOE) to understand the safety culture and safety conscious work environment of many of the major sites and projects of the DOE. Along with conducting evaluations and assessments, Sonja has been providing consultation in organizational interventions including leadership and management training, enhanced communication and observational skills training and human performance improvement. She earned her Ph.D. in psychology.

Sam Chanoski

Sam Chanoski joined NERC in July 2012 in the Atlanta, Georgia office as the Manager of Bulk Power System Awareness. Sam came from Duquesne Light where he worked as a Shift Supervisor, managing the real-time operation of Pittsburgh's transmission and distribution system. Prior to that, he worked as a line supervisor with FirstEnergy in Easton, PA, and with Consolidated Edison as a Substations Shift Supervisor and as an Auxiliary Systems Maintenance Supervisor in New York City. He served for six years on active duty in the U.S. Army as an infantry officer, and is currently a military intelligence officer in the Army Reserve. Sam has a Bachelors degree in Computer Science and Operations Research from the U.S. Air Force Academy and an MBA from Lehigh University; he is currently pursuing a Masters of Engineering degree in Transmission and Distribution Engineering with Gonzaga University.

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Dr. Mica Endsley

Dr. Mica R. Endsley is President of SA Technologies, a cognitive engineering firm specializing in the analysis, design, measurement and training of situation awareness in advanced systems, including the next generation of systems for aviation, air traffic control, medical, power, military operations, homeland security, and cyber. Dr. Endsley received a Ph.D. in Industrial and Systems Engineering from the University of Southern California. Prior to forming SA Technologies she was a Visiting

Associate Professor at MIT in the Department of Aeronautics and Astronautics and Associate Professor of Industrial Engineering at Texas Tech University. She has authored over 200 scientific articles on situation awareness, decision making and automation. She is co-author of *Analysis and Measurement of Situation Awareness* and *Designing for Situation Awareness.* She is also the Past President of the Human Factors and Ergonomics Society.

Dr. G. Kumar Venayagamoorthy

G. Kumar Venayagamoorthy received his Ph.D. degree in electrical engineering from the University of Natal, Durban, South Africa, in 2002. He is the Duke Energy Distinguished Professor of Electrical and Computer Engineering at Clemson University, Clemson-SC, USA. Prior to that, he was a Professor of Electrical and Computer Engineering at the Missouri University of Science and Technology (Missouri S&T), Rolla, USA. He was a Visiting Researcher with ABB Corporate Research, Sweden, in 2007. Dr. Venayagamoorthy is Founder and Director of the Real-Time Power and Intelligent Systems Laboratory (http://rtpis.org). His research interests are in the development and applications of advanced computational algorithms for power and energy systems, including power systems stability, control and operations, smart grid applications, sensor networks and signal processing. He has published 2 edited books, 8 book chapters, and about 100 refereed journals papers and 300 refereed conference proceeding papers. His *h*-index and citations are 22 and over 2000 citations (from Scopus), respectively, and 34 and over 4800 (from Google scholar), respectively.

Dr. Venayagamoorthy is a recipient of several awards including a 2010 Innovation Award from St. Louis Academy of Science, and the 2010 IEEE Region 5 Outstanding Member Award. He is the recipient of the 2012 Institution of Engineering and Technology (IET) Generation, Transmission and Distribution Premier Award for the best research paper published during last two years for the paper "Wide area control for improving stability of a power system with plug-in electric vehicles".

Dr. Venayagamoorthy is involved in the leadership and organization of many conferences including the Chairs of the 2013 Clemson University Power System Conference and IEEE Symposium of Computational Intelligence Applications in Smart Grid (CIASG) to be held in Clemson (USA), and Singapore, respectively. He is currently the Chair of the IEEE PES Working Group on Intelligent Control Systems, the Founder and Chair of IEEE Computational Intelligence Society (CIS) Task Force on Smart Grid, and the past Chair of the IEEE PES Intelligent Systems Subcommittee. He is currently an Editor of the IEEE Transactions on Smart Grid.

Dr. Venayagamoorthy is a Senior Member of the IEEE, and a Fellow of the IET, UK, and the South African Institute of Electrical Engineers.

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Dr. Michael E. Legatt

Michael E. Legatt is the principal human factors engineer for the Electric Reliability Council of Texas (ERCOT), which manages the flow of electricity to 22.7 million Texas customers. Legatt has been a programmer for over twenty years. He has a Ph.D. in clinical health psychology/neuropsychology from the Ferkauf Graduate School of Psychology/Albert Einstein College of Medicine.

As an amateur (ham) radio operator, he received a commendation for helping to provide emergency communications during the 2003 blackout in the northeastern United States, which sparked his interest in the psychology of energy management. He works to build systems designed to provide

operators with needed information, optimizing for perception, speed, comprehension, and stress management.

His development of the Macomber Map® has been featured in the New York Times and T&D World. The Macomber Map was credited as being instrumental in helping ERCOT operators maintain grid reliability during several record-setting wind generation levels since 2010, and through several severe weather events since 2009.

He also works on the behavioral aspects of consumer electric use, researching electric vehicle to grid integration, behavioral aspects of conservation and consumer awareness in grid management, and the cybersecurity, behavioral, and reliability issues that arise with integration of new technologies across layers of the grid. He is ERCOT's lead on a collaborative project with the University of Texas at Austin, EV-TEC and the Pecan Street Project to study integrating electric vehicle charging and driver behavioral patterns with the bulk electric system. This research project looks at the viability of EVs to intelligently charge in a distributed fashion and provide ancillary services.

Legatt is currently pursuing a Ph.D. in energy systems engineering at the University of Texas at Austin.

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Kelly Blackmer

Kelly Blackmer is currently the Manager of Operations Readiness.

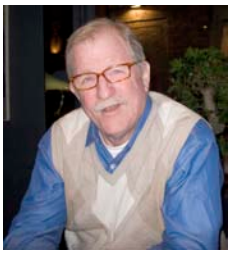
He has thirty years combined experience in the bulk electric utility industry. He has served as a Generation Operator for the Lower Colorado River Authority in Texas as well as a Hydro Power Plant Operator and Mechanical Maintenance Supervisor with the Luck Peak Power Project in Boise Idaho.

He has served as a Transmission Operator for Idaho Power as well as the Lower Colorado River Authority before joining ERCOT in 2000.

While at ERCOT he has served as a Transmission Operator, Shift Supervisor, Black Start Coordinator/ Sr. Training Specialist, Supervisor of Emergency Operations and his current position as Manager of Operations Readiness.

Kelly is a NERC and ERCOT Certified System Operator (RC)

Rusty Rae



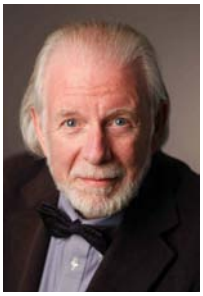
Rusty Rae is the Alstom Grid Technical Institute (ATI) Manager in Redmond, Washington, where he manages the development and delivery of training for Alstom Grid's Center of Excellence (COE). His responsibility for courseware development is to the global Alstom organization while his responsibility for delivery of training is within North America. Rusty brings a diverse background to the Alstom Technical Institute that includes more than twenty years of experience in technical courseware development and delivery as well as expertise in technical support. He regularly teaches a course in troubleshooting for technical support, which has been delivered to various clients worldwide. As the Alstom Grid Technical Institute Manager he also brings a wealth of knowledge regarding the use of a Structured Approach to Training (SAT) using the ADDIE framework. He also has a strong background in organizational development and is certified to deliver both the Myers Briggs Temperament Indicators as well as the Emotional Intelligence assessment (EQ-i 2.0.) He has also worked with a wide range of organizations in developing vision, mission and values statements.

Rusty is an avid photographer and a fan of endurance car racing, and visits the 24 Hours of Le Mans whenever his schedule allows as well as racing events in the states.

He holds a Bachelor of Arts from Linfield College in Journalism with a minor in Chemistry and an MBA

from the University of Washington. He celebrated his five year anniversary with Alstom Grid in March 2013.

Dr. Richard "Dick" Clark



Richard Clark is Professor Emeritus of Educational Psychology and Technology, Clinical Professor of Surgery and has served as Co-Director of the Center for Cognitive Technology at the University of Southern California. Before coming to USC he was a faculty member in Psychology and Education at Stanford and Syracuse Universities. He is also CEO of Atlantic Training Inc. and has served as Chief Science Advisor for Expert Knowledge Solutions LLC.

Dick is the author of over 300 published articles and book chapters as well as three recent books - *Learning from Media: Arguments, analysis and evidence*, Second Edition (2012, Information Age Publishers); *Handling Complexity in Learning Environments: Research and Theory* (2006, Elsevier) and *Turning Research into Results: A guide to selecting the right performance solutions* (2008, Information Age Publishers) which received the International Society for Performance Improvement (ISPI) Award of Excellence. In recent years he has received the 2013 USC Faculty Lifetime Achievement Award, the Thomas F. Gilbert distinguished professional achievement award and a Presidential Citation for Intellectual Leadership from ISPI, the SITE Foundation Excellence in Research Award, the ASTD research study of the year award for his work on performance incentives, the 2010 Thalheimer Neon Elephant Award for bridging the gap between science and practice, the 2011 Presidential Award for Intellectual Leadership from AECT, the Socrates award for excellence in teaching from the graduate students at USC and the Outstanding Civilian Service Award from the U. S. Army for his work in distance learning.

Dick is an elected Fellow of the American Psychological Association (Division 15, Educational Psychology), the American Educational Research Association and the Association of Applied Psychology and is a Founding Fellow of the Association for Psychological Science.

His current research interests include the design and evaluation of online and blended instruction for adults on highly complex tasks, cognitive load theory for multimedia and simulation training, the development of the Guided Experiential Learning design systems for pedagogical applications and the use of Cognitive Task Analysis to capture and teach the complex knowledge used by advanced experts in all fields.

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Dr. Bror Saxberg

Bror Saxberg is responsible for the research and development of innovative learning strategies, technologies and products across Kaplan's full range of educational services offerings. He also oversees future developments and adoptions of innovative learning technologies and maintains consistent academic standards for Kaplan's products and courses.

Saxberg most recently served as Senior Vice President and Chief Learning Officer at K12, Inc., where he was responsible for designing both online and off-line learning environments and developing new student products and services. Prior to joining K12, Inc., he was Vice President at Knowledge Universe, where he co-founded the testing and assessment division that became known as Knowledge Testing Enterprise (KTE). Saxberg began

his career at McKinsey & Company, Inc. and later served as Vice President and General Manager for London-based DK Multimedia, part of DK Publishing, and education and reference publisher.

Saxberg holds a B.A. in Mathematics and a B.S. in Electrical Engineering from the University of Washington. As a Rhodes Scholar, he received an M.A. in Mathematics from Oxford University. He also received a Ph.D. in Electrical Engineering and Computer Science from M.I.T. and an M.D. from Harvard Medical School.

Dr. Gary Kaufman

Gary Kaufman is the owner of Human Resources Consulting, a company he started in 1987. Human Resources Consulting (HRC) develops and operates applicant screening and selection processes for utilities, manufactures, and a variety of service and governmental organizations. One of HRC's products, SRO Success, is currently used by eleven utilities to screen applicants for senior reactor operator positions.

Gary earned his Ph.D. in Industrial/Organizational psychology at the University of Tennessee in 1972. He managed personnel research for the Internal Revenue Service from 1972 to 1981. From 1981 to 1987, he was the corporate manager for employee selection, performance appraisal, opinion surveys and human resources planning for the J. C. Penney Company.

Gary is a frequent speaker and the author of numerous articles and technical papers including research published in the *Journal of Applied Psychology* and *Educational and Psychological Measurement.* His work has been cited in *The New York Times* and *The Washington Post*. His article, "Fixing HR" appeared in 2006 in the *Harvard Business Review.*

Doug Bailey

Doug Bailey is the General Manager, Transmission Operations for TVA and is responsible for the real-time operation of the TVA transmission system. Doug has over 22 years of industry experience and has a diverse background in engineering and operations. He chairs the TVA Reliability Review Committee which is charged with reviewing human performance events impacting the transmission system and the identification of programmatic corrective actions.

Dr. Gary Williamson

Dr. Gary A. Williamson is Managing Partner at PSP Metrics. PSP is a leading employment testing firm which has provided screening tools to local, national, and international corporations for over 60 years. The firm pioneered research in work motivation in studies by PSP's former Director of Research, Dr. Frederick Herzberg.

Dr. Williamson joined PSP in 1986 after spending 8 years developing employee and patient care programs in the Veterans Healthcare System. His current responsibilities at PSP involve executive/management selection, system operator selection, succession planning, plant start-up, and coaching/mentorship programs. He has consulted with the presidents and CEOs of manufacturing, energy, consumer products, and healthcare organizations for over 25 years.

Dr. Williamson frequently speaks on a variety of topics related to people at work, including motivation and productivity, leadership at the peak, and employee selection. He has over 30 years of supervisory experience with employees ranging

from college undergraduates to doctoral staff members and serves as a consultant to over five dozen public, privately held, and family-owned corporations throughout the world.

A licensed psychologist in the Commonwealth of Pennsylvania, Dr. Williamson has served as Assistant Professor of Psychiatry at the University of Pittsburgh School of Medicine and Guest Faculty at the Carnegie Mellon University Information Networking Institute. He is a Fellow of the Pennsylvania Psychological Association and a member of the American Psychological Association and the National Register of Health Service Psychologists.

Dr. Williamson has published numerous scientific papers on a variety of clinical and corporate topic areas. His current interests lie in the areas of leadership development, talent inventories, and success factors in system operator selection.

Dr. Robin Podmore

Robin Podmore received his Bachelors and Ph.D. degrees in Electrical Engineering from University of Canterbury, New Zealand in 1968 and 1973. From 1974 to 1978 he managed the Power Systems Research group at Systems Control (now ABB) in Palo Alto, CA. From 1979 to 1990 he was a director and founder of ESCA Corporation now Alstom Grid.

Since 1990 he has been founder and president of IncSys. He has more than 40 years of managerial and technical experience in the development and implementation of power industry computer applications. For more than twenty years he has been working on making Operator Training Simulators affordable, available and usable for all power system operators. The PowerSimulator product developed by IncSys and PowerData is now used to train more than 50% of North American Reliability Corporation certified power system operators. During 2008 through 2011, with sponsorship of the US Department of State he worked with and trained the trainers for the Ministry of Electricity Real-time engineers in Baghdad, Iraq and witnessed a dramatic decrease in the frequency of system wide blackouts.

For the last three years he has been working as Co-Chair of the IEEE Community Solutions Initiative to provide affordable energy for the world's poorest. In January 2012 he was appointed as Vice President of New Initiatives and Outreach for the IEEE Power and Energy Society.

In 2009, with support from a DOE Smart Grid Workforce Training Award Dr. Podmore founded the Power4Vets program for recruiting, training, certifying and placing military veterans as power system operators.

He is a Fellow of the IEEE Power Engineering Society and a registered Professional Engineer in the State of California. In February 2013 Dr. Podmore was nominated to the National Academy of Engineers for development of modeling and simulation tools for power system operation.