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NATIONAL LABORATORY

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Energy Technology Development Group
STAFF DIRECTORY



April 2010

PNNL-SA-72108

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Sue Arey

Sue Arey has over 30 years of experience in support of projects and programs. She supports an extensive portfolio of projects and has experience with clients including the U.S. Department of Energy, Bonneville Power Administration, work for other federal agencies, the California Energy Commission and private industry, as well as in-house investment funding. She routinely handles complex financial situations, subcontract placement and monitoring, as well as other support activities and general project management support. Ms. Arey is also an authorized editorial reviewer within the Directorate.

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Nathan Bauman

Nathan Bauman joined Pacific Northwest National Laboratory in 1992 and the Energy Technology Development group in 1996. Current work includes the installation and troubleshooting of data acquisition systems for building heating, ventilating, air conditioning and refrigeration (HVAC&R) equipment and analysis of baseline and post-technology installation for energy savings and equipment life extension as part of the Navy TechVal project. Additional work also includes classroom re-tuning and field training of HVAC&R service providers and advanced energy metering projects for the Marine Corps.

Previous work included positions as Operations Shift Supervisor for the one-quarter scale Pretreatment Engineering Platform testing the design for the Waste Treatment Plant project and the design and deployment of the Radiation Portal Monitoring Project (RPMP) equipment for the Rail Vector, specifically integration of the Rail ID systems with the RPMP radiation monitoring system.

Research Interests

Energy efficiency technology field assessments and analysis
Operations and maintenance, commissioning, and re-tuning building systems
Research and development of automated fault detection and diagnostics

Education

- M.S. Mechanical Engineering, Washington State University
- B.S. Mechanical Engineering, Washington State University

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Mike Brambley

Michael Brambley has over 30 years of academic and research experience related to energy technologies and policy, focusing for the last 22 years while at Pacific Northwest National Laboratory (PNNL) on developing technologies for improving building energy efficiency. At PNNL, Dr. Brambley has served in a variety of roles including principal investigator and research contributor, project and program manager, technical group leader, department chief scientist, and leader of several initiatives. Most of his work over the last 15 years has focused on improving the actual operating efficiency of buildings and other energy systems. For 6 years before joining PNNL, Dr. Brambley was a faculty member at the Washington University Engineering School in St. Louis.

Research Interests

Intelligent buildings; automated fault detection and diagnostics; self-correcting, fault-tolerant controls; automated commissioning; condition-based and predictive maintenance; exergy analysis in support of policy and planning research; wireless sensing; supervisory control; re-tuning building systems

Education

- Ph.D. Engineering Sciences, University of California, San Diego, 1981
- M.S. Engineering Sciences, University of California, San Diego, 1978
- B.S. Mechanical Engineering, University of Pennsylvania, 1976



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Teresa Carlon

Teresa Carlon has been with Pacific Northwest National Laboratory since 1992. Most recently, Ms. Carlon completed her Bachelor's degree in Information Technology studying Java, C, C++ programming, computer and information process, project planning and implementation, SQL for business, and networks and telecommunications concepts. She worked as the technical support contact for homeowners during the Olympic Peninsula GridWise Testbed Demonstration project and has won a Federal Laboratory Consortium for Technology Transfer (FLC) award for her role in the development of the Whole-Building Diagnostician software, which was commercialized by NorthWrite as the Energy Expert in 2008.

Research Interests

Project Management and Implementation
 Database Design
 Computer Database Administration
 Computer Technical Support
 Web Programming, Designing, and Maintenance

Education

- B.S. Information Technology, University of Phoenix, 2009



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David Chassin

David Chassin has more than 25 years of experience in the research and development of computer applications software for the architecture, engineering, and construction (AEC) industry. He manages the development of GridLAB-D and he is responsible for the operation of PNNL Electricity Infrastructure Operations Center (EIOC). He also chairs the OASIS Blue steering committee and supports the Western Electric Coordinate Council's Load Modeling Task Force.

David is a senior member of IEEE, and holds four US patents and one foreign patent for a building energy performance diagnostician and for Grid-Friendly™ control devices. He is a R&D 100 award recipient and he has received three Federal Laboratory Consortium awards for technology transfer since he came to the PNNL in 1992.

Research Interests

David's research focuses on nonlinear system behavior, power market modeling, electric load modeling, diagnostic systems, energy system modeling and simulation. David pioneered the practical application of market-like systems in commercial and residential buildings, and was the principal architect of the Olympic Peninsula's real-time pricing system.

Education

- B.S. Building Science, Rensselaer Polytechnic Institute, 1987



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Yousu Chen

Yousu Chen has been with Pacific Northwest National Laboratory since 2006. His main research interests include high-performance computing applications, power system operations and decision support, and power system stability and control. Currently, Mr. Chen manages several high-impact projects on applying high-performance computing techniques to power grid problems and developing an advanced real-time decision support tool for power grid operations. Other work includes smart grid technologies, modal analysis for grid operations, GridLAB-D development, distribution feeder taxonomy, and distribution system analysis.

Research Interests

High-performance computing applications
 Power system operations and decision support
 Power system stability and control

Education

- M.S. Environmental Engineering, Washington State University, 2006
- M.S. Electrical Engineering, Nankai University, 2002
- B.E. Electrical Engineering, Sichuan University, 1997



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Jeff Dagle

Jeff Dagle joined Pacific Northwest National Laboratory (PNNL) in 1989 and currently manages several projects in the areas of transmission reliability and control system security for the U.S. Department of Energy (DOE) Office of Electricity Delivery and Energy Reliability, U.S. Department of Homeland Security, and other clients. Mr. Dagle is a Senior Member of the Institute of Electrical and Electronics Engineers and is a licensed Professional Engineer in the State of Washington. Significant career highlights include receiving the 2001 Tri-City Engineer of the Year award from the Washington Society of Professional Engineers, leading the data requests and management task for the August 14, 2003, Northeast Blackout Investigation Task Force, briefing President George Bush and Secretary Samuel Bodman on electric power grid research initiatives underway at PNNL in March 2005, supporting the DOE Infrastructure Security and Energy Restoration Division with onsite assessments in New Orleans following Hurricane Katrina in fall 2005, receiving two patents, receiving a Federal Laboratory Consortium for Technology Transfer (FLC) Award in 2007, and receiving an R&D 100 Award in 2008 for the Grid Friendly™ Appliance Controller technology.

Research Interests

Electric power reliability and security

Education

- MSEE Washington State University, 1994
- BSEE Washington State University, 1989

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Greg Dayley

Greg Dayley joined Pacific Northwest National Laboratory (PNNL) in 2010 as a Network Administrator. Mr. Dayley currently is continuing his education and working toward a B.S. in IT Networking. He has been building and repairing computers for 14 years

Research Interests

Network Security
High-speed data transmission
High-speed computing
Networking systems.

Education

- A.A. Information Technology/ Networking, University of Phoenix, 2009



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John DeSteele

John DeSteele has 50 years of experience in analysis and development of power delivery systems that extract, convert, transport or store energy. His professional experience covers a broad range including advanced nuclear and fossil energy conversion research and development; innovation and analysis of system concepts; and planning, integration, and management of system development programs.

Mr. DeSteele has authored over 130 publications and received 8 patents relating to his work in the areas of thermal and electric power delivery, SMES, electric utility transmission, distribution and storage, system safety and environmental control, human factors engineering, energy management systems, advanced materials, and nuclear battery development.

Research Interests

Smart Grid technologies and applications
Energy efficiency
Ambient energy harvesting
Terrestrial and space energy conversion

Education

- B. Sc.(Eng), University of London, 1960



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Ruisheng Diao

Ruisheng Diao is currently a power systems research engineer with Pacific Northwest National Laboratory. Dr. Diao has participated in multiple projects related to power system stability and control, dynamic state estimation, online security assessment, integration of renewable energy, and power system dynamic behavior.

Research Interests

Power system stability and control
 Online security assessment
 Integration of renewable energy
 Power system dynamic behavior

Education

- Ph.D. Electrical Engineering, Arizona State University, 2009
- M.S. Electrical Engineering, Zhejiang University, China, 2006
- B.S. Electrical Engineering, Zhejiang University, China, 2004

Engineer

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Pengwei Du

Pengwei Du joined Pacific Northwest National Laboratory (PNNL) in 2008. He has been a key technical contributor or leader for projects in the areas of wide-area security analysis, smart demand response schedule, energy storage application, and model validation. He worked as a summer intern at GE Global Research Center in 2002. Dr. Du was the recipient of a GE Global Research Center Fellowship in 2004 and 2005, and received a PNNL Outstanding Performance Award in 2009. He has authored/co-authored over 15 journal articles, conference papers, and technical reports. Dr. Du holds two patents and has one pending. He is a member of the WECC modeling and validation working group and reviewer of *IET Generation*, *Transmission & Distribution*, *IEEE Transactions on Power Systems*, *IEEE Transactions on Power Delivery*, and *IEEE Transactions on Sustainable Energy*.

Research Interests

Power System Modeling and Analysis
 Distributed Generation
 Smart Grid

Education

- Ph.D. in Electrical Power Engineering, Rensselaer Polytechnic Institute, 2006
- M.S. in Electrical Engineering, Southeast University, Nanjing, China, 2000
- B.S. in Electrical Engineering Southeast University, Nanjing, China, July 1997



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Steve Elbert

Stephen Elbert has over 30 years of experience as a computational scientist and program manager for grand challenge applications at the U.S. Department of Energy (DOE) and the National Science Foundation, where he managed the supercomputer centers program. He regularly serves on the DOE Computational Science Graduate Fellowship selection and screening committees. Dr. Elbert is the author of over 70 publications including journal articles (one with over 7,700 citations), book chapters, conference proceedings, and technical reports. He joined Pacific Northwest National Laboratory in 2004 and is also an adjunct professor in the School of Electrical Engineering and Computer Science at Washington State University.

Research Interests

His research interests include new approaches to scalable, fault-resilient, and energy-efficient computational problems, especially data intensive ones. Most recently he has been active in developing the wind integration model; parallel approaches to implementing Kalman filters for dynamic state estimation; optimization methods for unit commitment, economic dispatch, and financial transmission rights; and scalable solutions to data management for wind integration and the smart grid.

Education

- Ph.D. Computational Chemistry, University of Washington, 1973
- B.S. Chemistry, Iowa State University, 1968



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Marcelo Elizondo

Marcelo Elizondo joined Pacific Northwest National Laboratory in October 2009. He has experience and interest in multidisciplinary research related to power system engineering. His Ph.D. research focused on the economic valuation of fast power system controllers in an electricity market environment. Dr. Elizondo's research included modeling linear and nonlinear power system controllers, preventive generation rescheduling to enhance transient stability, and the relationship between power system security and reliability. Dr. Elizondo was an industry consultant for two years during which he managed projects on wind generation impact on power system stability, and was involved in the technical design of a new ancillary services market.

Research Interests

Power system stability modeling and control; energy storage in power systems; renewable energy integration

Education

- Ph.D. Electrical Engineering, Universidad Nacional de San Juan, Argentina, 2008
- Graduate visiting scholar at Carnegie Mellon University, 2003-2005
- Electrical Engineer, Universidad Nacional de San Juan, Argentina, 2001
- Undergraduate visiting scholar at Supélec, France, 2001



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Pavel Etingov

Pavel Etingov has been with Pacific Northwest National Laboratory since 2008. Dr. Etingov has over 10 years of experience in power system analysis and control. His research activities include studies on wind generation integration and power system operation, modeling and control.

Research Interests

Wind power generation
Stability analysis of electric power systems
Power system automation and control
Application of Artificial Intelligence to Power Systems

Education

- Ph.D. Electrical Engineering, Energy Systems Institute of the Russian Academy of Sciences, Russia, 2003
- Electrical Engineer, Irkutsk State Technical University, Russia, 1997

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Jason Fuller

Jason Fuller started working at Pacific Northwest National Laboratory (PNNL) through several internship programs and joined the staff in 2009. Mr. Fuller is completing his Master's degree in Electrical Engineering. His area of interest includes distribution automation and analysis and integration of distribution-level technologies. Mr. Fuller's main area of work has been in the development of GridLAB-D, a power-flow simulation environment developed at PNNL.

Research Interests

Distribution analysis and automation, integration of renewable resources

Education

- B.S. Physics, University of Washington

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Don Hammerstrom

Don Hammerstrom is a senior research engineer at Pacific Northwest National Laboratory, where he has worked for 10 years. Earlier, he developed microelectromechanical systems, aerosol collectors, and power electronic converters. More recently, he has become nationally known for his leadership of Smart Grid field demonstrations and development of innovative methods to control distributed power grid assets. From 2004 through 2007, Mr. Hammerstrom led U.S. Department of Energy GridWise® field demonstrations, including the Grid Friendly™ Appliance and Olympic Peninsula projects. Presently, Don is Principal Investigator for the Pacific Northwest Smart Grid Demonstration.

Research Interests

Smart Grid field demonstrations
 Development of autonomous controllers, Grid Friendly Appliance controls
 Simple, demand-response interfaces to appliances
 Demand response
 Microfabrication
 Power conversion
 Power electronic power conversion
 Power systems
 Transactive, price-based control of energy systems
 Sensors, electronics
 Embedded digital control
 Simulation
 Product development, commercialization



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Darrel Hatley

Darrel Hatley is a Manager and principal investigator with the Energy Technology Development group of Pacific Northwest National Laboratory (PNNL). Mr. Hatley has over 40 years of experience in the heating, ventilating, air conditioning (HVAC)/mechanical field. He is primarily responsible for the development and interactions of new technologies into the buildings controls and energy-related field and hold patents in these areas. He is currently advisor to several HVAC projects for DOE, DOD and GSA and is applying fault detection in these projects. Mr. Hatley also is assisting in applying new generation controls with fault detection to systems for the PNNL Richland, Washington campus.

Research Interests

Building energy management
 Building controls operations and fault detection
 Training for building managers and operation staff in energy management

Education

- Certified Energy Manager



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John Hauer

John Hauer started his engineering career with the General Electric Company in 1961. In 1975, he joined the Bonneville Power Administration. In 1994, he retired as Principal Engineer for Power System Dynamics and joined the power systems group at the Pacific Northwest National Laboratory (PNNL). Dr. Hauer is a Laboratory Fellow at PNNL, a Life Fellow of the IEEE, and a professional engineer licensed in the State of Oregon. He has authored or co-authored several hundred publications.

Research Interests

Testing, analysis, and control of power system dynamics.

Education

- Ph.D. Electrical Engineering, University of Washington, 1968
- B.S. Electrical Engineering, Gonzaga University, 1961

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Matthew Hauer

Matthew Hauer joined Pacific Northwest National Laboratory in 2007. Mr. Hauer has been working with the Electrical Power Systems Engineering group to provide software engineering support to various projects, primarily GridLAB-D and phasor data analysis tools.

Research Interests

Modeling system research and development
Real-time power system measurement applications

Education

- B.A. Computer Science, Eastern Washington University, 2007



Engineer

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Henry Huang

Research Interests

Power system stability and control, high-performance computing applications, phasor technology, and power system signal processing

Education

- Ph.D. Electrical Engineering, Tsinghua University, Beijing, China, 1999
- BEE Huazhong University of Science and Technology, Wuhan, China, 1994

Technician

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Kristy Huston

Research Interests

Database architecture

Network security

Network architecture

Education

- Currently attending Columbia Basin College to acquire an A.A. in business with plans to continue at Washington State University for a B.S. in Management Information Systems



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Chunlian Jin

Chunlian Jin joined Pacific Northwest National Laboratory in 2008. Dr. Jin has been doing power system-related research for 9 years. Her research interests include modeling and assessment of power system operations and control performance, integration of renewable resources, and energy storage assessment. She has authored or co-authored approximately 15 publications including journal articles, conference proceedings, and technical reports.

Research Interests

Energy storage assessment
Power system operation modeling and analysis
Renewable energy integration analysis

Education

- Ph.D. Course Electrical Engineering, University of South Carolina, 2008
- M.S. Electrical Engineering, Tsinghua University, Beijing China, 2003
- B.S. Electrical Engineering, Northwestern Polytechnical University, Xi'an China, 2000



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Shuangshuang Jin

Shuangshuang Jin joined Pacific Northwest National Laboratory as a research engineer in 2008. Dr. Jin's research interests include high-performance computation, computer modeling and visualization for power system application, and bioinformatics. Her current work involves multithreading optimization in GridLAB-D, parallel computation in power grid contingency analysis, and software development for power system oscillation detection. She has authored or co-authored 15 journal papers, conference proceedings, and technical reports in the areas of computer science, power system applications, and bioinformatics researches.

Research Interests

High-performance computation
Computer modeling and visualization
Bioinformatics

Education

- Ph.D. Computer Science, Washington State University, 2007
- M.S. Computer Science, Washington State University, 2003
- B.E. Computer Science, Wuhan university, China, 2001



Engineer

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Srinivas Katipamula

Srinivas Katipamula is a Staff Scientist at Pacific Northwest National Laboratory (PNNL). He joined PNNL in 1994. Dr. Katipamula has extensive technical experience in the evaluation of advanced design concepts for heating, ventilation and air-conditioning systems, demand response techniques for commercial and residential buildings, development of automated fault detection and diagnostic techniques, building and energy system simulations, analysis and evaluation of new energy efficient technologies, and development and use of analytical modeling techniques. Dr. Katipamula recently led a team of PNNL staff that demonstrated transactive (price-based) controls in commercial and industrial sites. He is active in both ASHRAE and AMSE technical committees and is an associate editor of the ASME *Journal of Energy Resources Technology*. He is a Fellow of ASHRAE.

Research Interests

Deployment of transactive controls in buildings, improving integration of smart grid and buildings, and fault detection and diagnostics including automated commissioning and fault-tolerant (self-correcting) controls

Education

- Ph.D. Mechanical Engineering, Texas A&M University, 1989
- M.S. Mechanical Engineering, Texas A&M University, 1985
- B.E. Mechanical Engineering, Osmania University, India, 1983



Engineer

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Michael Kintner-Meyer

Dr. Kintner-Meyer has 21 years of energy/economics/environment system analysis and modeling experience. As an engineer by training, he has managed U.S. and international teams on numerous system modeling activities and has been intimately involved in technical aspects of system modeling including electric capacity expansion planning, optimal electric generation dispatch under security and emissions constraints, renewable energy resource assessments, integration of renewable technology into the grid, distribution system planning and automation, and residential, commercial and transportation demand modeling.

Research Interests

Researching the interface between physical science, engineered systems, and economics

Education

- Ph.D. Mechanical Engineering, University of Washington, 1994
- M.S. Mechanical Engineering, Technical University of Aachen, Germany, 1985
- BSME Technical University of Braunschweig, Germany, 1980



Staff Scientist

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Harold Kirkham

Harold Kirkham joined Pacific Northwest National Laboratory in 2009 to do research related to the smart grid. Before that, he was at the Jet Propulsion Laboratory in Pasadena, California, where he managed a number of projects related to electric power systems and measurements. This work included “Communication and Control for Electric Power Systems” (U.S. Department of Energy-funded) and “NEPTUNE-Power” (National Science Foundation- funded with the University of Washington).

A Fellow of IEEE, Dr. Kirkham has been a member of the Power and Energy Society’s Technical Council for several years, has chaired the Instrumentation and Measurements Committee, and has participated in the development of several standards. He has received several IEEE awards. He has published many papers and reports and a “how to” manual on technical graphics.

Research Interests

Power system operations and smart grid

Measurements for power systems

Electric field measurements

Education

- Ph.D. Stability of combined AC/DC power system, Drexel University, 1973
- MSc Power Systems, Aston University, England, 1968
- BSc (Hons) Power Systems, Measurements, Aston University, England, 1966

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Theresa Koehler

Theresa Koehler joined Pacific Northwest National Laboratory (PNNL) in 1999. Before joining PNNL, she worked at industrial manufacturing facilities in environmental, energy, and project management capacities where she gained an understanding of managing multi-million dollar projects from a comprehensive, multidisciplinary approach. Her breadth of projects at PNNL has enhanced her knowledge of energy auditing, efficiency, energy generation technologies, and advanced diagnostics to enhance the service life of plant equipment.

Research Interests

Industrial energy management/assessments; effective operations and maintenance practices

Distributed generation/combined cooling, heating, and power; fuel cell technologies

Fault detection and diagnostics and prognostics; life-cycle cost analysis

Education

- M.B.A. Washington State University, 1998
- P.E. (Mechanical) License, 1994
- B.S.M.E. Ohio University, 1983



Engineer

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Ning Lu

Ning Lu has over 16 years of experience in electric power engineering. Dr. Lu has managed research projects in smart house technology development, modeling climate impacts on residential and commercial building energy consumption, wind integration studies, and wide-area energy storage management systems. Dr. Lu is a senior member of the IEEE. She has authored or co-authored more than 40 publications including journal articles, conference proceedings, and technical reports. Dr. Lu joined Pacific Northwest National Laboratory in 2003. She was with the Shenyang Electric Power Survey and Design Institute from 1993 to 1998.

Research Interests

Model and analyze power system load behaviors

Wide-area energy storage

Wind integration

Climate impact on power grids

Predictive Defense Model of the smart grid

Education

- Ph.D. Electric Power Engineering, Rensselaer Polytechnic Institute, 2002
- M.S. Electric Power Engineering, Rensselaer Polytechnic Institute, 1999
- B.Eng. Electrical Engineering, Harbin Institute of Technology, Harbin, Heilongjiang, China, 1993



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Shuai Lu

Shuai Lu joined Pacific Northwest National Laboratory (PNNL) in 2006. Dr. Lu has very broad knowledge in power system engineering. Dr. Lu has led or contributed to many R&D projects for the U.S. Department of Energy as well as industry clients in areas including the integration of renewable resources, power system dynamic modeling, security analysis, generation dispatch optimization, and demand response technologies. Before joining PNNL, Dr. Lu conducted research on the design of an undersea power and communication network (NEPTUNE) to be deployed on the sea floor of the northeast Pacific Ocean. He also designed digital controllers and models for static var compensation devices. Dr. Lu has authored or coauthored nearly 30 publications including journal articles, conference proceedings, and technical reports. He also holds two patents from China.

Research Interests

Renewables integration

Power system modeling and security analysis

Demand response and distributed resources

Generation dispatch optimization

Education

- Ph.D. Electrical Engineering, University of Washington, 2006
- M.S. Electrical Engineering, Tsinghua University, China, 2002
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Jian Ma

Dr. Ma obtained his Ph.D in Electrical Engineering from The University of Queensland, Australia in 2008. He held an International Postgraduate Research Scholarship and was a recipient of a 2006 Chinese Government Award for Outstanding Self-financed Student Abroad. Before that, he conducted research work as a research associate in the School of Mechanical and Aerospace Engineering at Nanyang Technological University, Singapore. Dr. Ma joined Pacific Northwest National Laboratory in 2007. He has authored over 50 publications including journal articles, book chapters, conference proceedings, and technical reports. He is a permanent paper reviewer for nine international journals including *IEEE Transactions on Power Systems*, *IEEE Transactions on Power Delivery*, *Electric Power Systems Research*, and *European Transactions on Electrical Power*.

Research Interests

Power system dynamics and stability
Power system operation and control
Power system security assessment
Renewable energy integration
Artificial intelligence and its application in power systems

Education

- Ph.D. Electrical Engineering, The University of Queensland, Australia, 2008
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- B.S. Mechanical Engineering, Shandong University, 1996

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Sylvia McCarty

Sylvia McCarty is the Lead Administrator for the Energy Technology Development (ETD) Group. She has been with Pacific Northwest National Laboratory (PNNL) since 1993. Her previous office management experience includes industry, construction, and non-profit organizations.

Ms. McCarty oversees the ETD group calendars, travel schedules, and daily office management. Sylvia is very knowledgeable of PNNL policies and procedures and is the person to contact for information regarding ETD staff.

Interests

Proficient in Microsoft Office Suite, Internet Explorer and Netscape, and PNNL-based programs
 Maintains effective working relationships with counterparts across PNNL, as well as with contacts in PNSO, DOE-OE, other national laboratories and universities
 Knowledge of immigration policy and procedures pertaining to foreign national staff members in a DOE environment
 Excellent interpersonal skills, prioritization, and ability to demonstrate sound judgment on sensitive issues

Education

- Associates Degree in Administration, Columbia Basin College, 1996



Engineer, TL
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Ron Melton

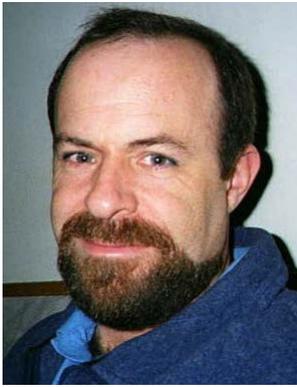
Ron Melton has over 30 years of experience in the application of computer technology and systems engineering to interdisciplinary scientific and engineering problems. Since 2008 he has been involved in efforts to develop and deploy smart grid technology to modernize the electric power system. This includes leadership of smart grid interoperability efforts as the Administrator of the GridWise® Architecture Council and through involvement in related efforts led by the National Institute of Standards and Technology (NIST). In recent years Dr. Melton has been a technical leader in cyber security for industrial control systems used in critical infrastructures. He was the lead author on the System Protection Profile for Industrial Control Systems prepared initially for the NIST and subsequently updated for the U.S. Department of Homeland Security.

Research Interests

Smart grid technology
 Control theory
 Interoperability and architecture for systems of systems
 Cyber security

Education

- Ph.D. Engineering Science, California Institute of Technology
- M.S. Engineering Science, California Institute of Technology
- BSEE, University of Washington



Engineer
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Carl Miller

Research Interests

Cyber Security, Information Assurance and SCADA development

Education

- M.S. Computer Security, University of Idaho (National Science Foundation's Federal Cyber Service Scholarship for Service scholar), 2006
- M.S. Mathematics, University of Massachusetts, 1984
- B.S. Biology, Boston University, 1981



Manager
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Mark Morgan

Mark Morgan has over 20 years of experience at Pacific Northwest National Laboratory (PNNL). He has held multiple complex project and line management positions at PNNL. Mr. Morgan has extensive background in the nuclear and power industries and has led significant programs that included Nuclear Regulatory Commission Operator Licensing and Savannah River Restart. He led PNNL's efforts to improve conduct of operations as a member of the Operations Improvement Program.

Currently, Mr. Morgan leads project efforts in "extreme events"—methods to understand and mitigate cascading outages—and the implementation of PNNL's Decision Support for Operations and Maintenance technology at the Aberdeen Proving Ground. He is the full-time Technical Group Manager of the Energy Technology Development Group consisting of more than 60 staff members dedicated towards the development of tools to enable real-time operation of the electric grid, creation and implementation of a "smart grid," and the diagnostics/real-time commissioning of commercial buildings and energy systems.

Research Interests

Optimization of Energy Systems
Human Performance/engineered systems interface

Education

- B.S. Nuclear Engineering, Memphis State University



Research Scientist
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Tony Nguyen

Tony Nguyen joined Pacific Northwest National Laboratory in 2002. His work involves power and energy systems: operation and control, dynamics and stability, renewable energy, system modeling and simulation, distributed energy resources, application software development, plug-in hybrid electric vehicles, and energy storage. Dr. Nguyen is the co-author of more than 30 publications including journal articles, conference proceedings, book chapters, and technical reports.

Research Interests

Power system dynamics and stability
 Power systems operation and control
 Dynamic security assessment
 Distributed generation
 Renewable energy
 System modeling and simulation

Education

- Ph.D. Electrical Engineering, University of Illinois at Urbana-Champaign, 2002
- M.S. Electrical Engineering, University of Illinois at Urbana-Champaign, 1999
- B.S., Electrical Engineering, University of Illinois at Urbana-Champaign, 1998
- B.S. Mathematics, CanTho University, Vietnam, 1989

Engineer
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Jim Nickolaus

Jim Nickolaus has 34 years experience in the operation, construction, and engineering of pressurized water reactors and non-nuclear power plants with experience in project management, project engineering, quality assurance, systems engineering, process control, nondestructive testing, and procedure writing. Mr. Nickolaus manages Pacific Northwest National Laboratory's Nuclear Regulatory Commission License Renewal program. This program has evaluated 19 utility applications for 20-year license extensions.

Research Interests

Management of energy-efficiency program performance

Education

- B.S. Mechanical Engineering, Gonzaga University



Senior Research Engineer
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Ron Pawlowski

Ron Pawlowski has over 20 years of experience in systems engineering of energy and national security applications. Mr. Pawlowski has modeled nuclear reactors to provide power for space applications. He has helped to develop real-time diagnostic and failure prediction systems for fossil-fueled power plants and gas turbine engines. He has also researched and written papers on cyber security issues for the national electricity infrastructure. Mr. Pawlowski is currently working on systems for the detection of illicit materials and is specifically focused on advanced spectroscopic portal monitors for scanning vehicles for nuclear materials.

Research Interests

Critical infrastructure protection
Cyber-security
Embedded software development
Detection of illicit nuclear materials

Education

- B.A. Nuclear Engineering, Oregon State University, 1988
- B.A. Physics, Oregon State University, 1988



Power Systems Engineer
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Nirupama Prakash Kumar

Nirupama Prakash Kumar received her MS degree in Electrical Engineering from the University of Washington at Seattle in 2008. She is currently a Power Systems Engineer at PNNL. Prior to her MS degree she worked for a few years as a Computer Systems Engineer in India. She has a Bachelors degree in Electrical and Electronics Engineering with a concentration in power from the University of Mysore, India.

Research Interests

Nirupama's research interests include smart grids studies, renewable energy integration studies, power systems market studies, demand response strategies and artificial intelligence as applied to power systems.

Education

- M.S. Electrical Engineering, University of Washington
- B.E. Electrical and Electronics Engineering, University of Mysore
- Member of the IEEE Power and Energy Society
- Member of Society for Women Engineers



Scientist

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Rob Pratt

Rob Pratt is one of the early thought leaders behind the smart grid, focused on an information-rich future for the power grid. He manages Pacific Northwest National Laboratory's (PNNL's) GridWise™ program activities for the U.S. Department of Energy. He leads a team studying communications architecture, advanced control technology, and simulation of the combined engineering and economic aspects of the future grid, including the effect of plug-in hybrid electric vehicles.

Education

- M.S. Mechanical Engineering, Colorado State University
- B.S. Ocean Engineering, Florida Atlantic University

Specialist

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Carla Raymond

Carla Raymond has more than 24 years of experience in providing business, financial and project management support to team leaders and staff within Pacific Northwest National Laboratory's Energy Efficiency Division. She supports an extensive portfolio of projects with clients including the U.S. Department of Energy, Bonneville Power Administration, other federal agencies, and private industry.

Ms. Raymond monitors project schedules and budgets, prepares status reports and budget forecasts, notifies project managers of potential schedule and budget problems, determines solutions to those problems, and plans schedules and budgets.

Ms. Raymond interacts with Contracts staff to ensure deliverables are on time and within budget. She also coordinates the proposal process, from the request for proposal through the completion of the proposal package with the Project Manager and Contracts Specialists.

Research Interests

Electricity infrastructure, information technology, and visualization

Education

- Hanford High School, 1976
- Training courses: Technical Administrator, Project Management, Social Styles, Access, Excel



Scientist

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Jorge Reyes-Spindola

Jorge Reyes-Spindola has been with Pacific Northwest National Laboratory for 11 years. He has over 15 years of experience in software design and programming, and database development and deployment. Mr. Reyes-Spindola's research interests are data analytics, optimization, and nonlinear filtering. He was a member of the OmniViz™ development team, has authored or co-authored papers in bioinformatics and nonlinear filtering, and is currently a member of the Electrical Power Systems Engineering Group.

Research Interests

Nonlinear Kalman filtering
Optimization and control systems
Statistical machine learning

Education

- M.S. Applied Mathematics and Computer Science, San Diego State University, 1988
- B.S. Physics, Minor in E.E., Universidad Autónoma de Baja California, Mexico, 1984



Engineer

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Nader Samaan

Nader Samaan has been with the Energy Technology Development group at Pacific Northwest National Laboratory since 2009. Before that, he was a power systems engineer performing consulting work in the area of wind energy at EnerNex Corp. at Knoxville, Tennessee for four years. He was a visiting assistant professor at the department of electrical and computer engineering at Kansas State University during the academic year 2004-05.

Dr. Samaan is a registered professional engineer in the state of Ohio and a member of CIGRE and the IEEE Power Engineering Society where he is a member of the wind power coordinating committee and the Vice Chairman of the collector system design working group. He has authored or co-authored more than 30 publications in the area of power systems engineering.

Research Interests

Renewable energy integration studies, power system reliability, extreme events and cascading failure analysis of power grid, impact studies for wind power plants, wind turbine dynamics modeling, distributed generation and micro-grids analysis, artificial intelligence and intelligent optimization techniques application to power systems.

Education

- Ph.D. Electrical Eng., Texas A&M University, 2004
- M.S. Electrical Eng., University of Alexandria, Egypt, 1999
- B.S. Electrical Eng.-Power Systems, University of Alexandria, Egypt, 1996

Engineer
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Chellury (Ram) Sastry

Chellury (Ram) Sastry joined the electricity infrastructure group at Pacific Northwest National Laboratory (PNNL) in 2009. He is currently working on various smart grid and renewable integration projects and is also partnering with external partners to determine PNNL's role for jointly securing U.S. Department of Energy (DOE)-funded recovery-act projects, both with DOE OE and DOE EERE including building technologies.

Before joining PNNL, Dr. Sastry was with Siemens Corporate Research in Princeton, New Jersey for over 10 years. He was responsible for strategic R&D program development for the next-generation power grid (Smart Grid), distributed generation based on renewable sources of energy and storage, and automated demand-response through advanced metering infrastructure, wireless sensors, and embedded controls running service-oriented paradigms.

Research Interests

Smart grid
Renewables integration
Research on high-performance buildings
Advanced HVAC control and optimization
Technology commercialization

Education

- Ph.D. Electrical Engineering, University of Pittsburgh, 1992

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Kevin Schneider



Engineer
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Ruchi Singh

Ruchi Singh joined Pacific Northwest National Laboratory's Energy Technology Development group in 2009. She has over three and half years of experience working as a Substation Design Engineer with Black & Veatch, an engineering consulting firm and worked with different utilities across the Midwest. She also worked as an intern with Xcel Energy Services, Minneapolis in their substation and planning group. Her Master's work involved dynamic equivalencing and stability studies using ATP/EMTP and PSS/E software tools.

Research Interests

Distribution system and resources modeling and analysis, small signal stability studies and real time power system planning issues

Education

- M.S. Electrical Engineering, Michigan Technological University, 2006
- B.S. Electrical Engineering, VTU, India, 2003



Engineer

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Viraj Srivastava

Viraj Srivastava received a Ph.D. in Building Performance and Diagnostics from Carnegie Mellon University in 2009. His thesis relates to the development, demonstration and evaluation of an advanced control system designed for cooling, heating, and ventilation in office buildings. The premise of the work is that the performance of control systems can be improved by combining predictive (feed-forward) control operations with feedback control.

Dr. Srivastava contributed to the National Environmental Assessment Toolkit (NEAT) project at Carnegie Mellon supported by the General Services Administration. He developed, constructed, and tested an affordable, robust, and portable suite of instruments and tools for the measurement of thermal, air, light and acoustic quality. He was an intern at Siemens Corporate Research from May to November 2008 contributing to their high-performance building project.

Research Interests

Building performance and diagnostics
Sensing and control systems
Post occupancy evaluation methods

Education

- Ph.D. Building Performance and Diagnostics, Carnegie Mellon University, 2009
- B.Arch, School of Planning and Architecture, New Delhi, India, 2001

Engineer

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Kris Subbarao



Research Engineer
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Frank Tuffner

Frank Tuffner has been with Pacific Northwest National Laboratory since 2008. Dr. Tuffner is part of Pacific Northwest National Laboratory (PNNL)'s plug-in hybrid electric vehicle (PHEV) Smart Charger project to design and examine new methods of controlling the charging for PHEVs. He has been involved in the PNNL GridLAB-D project as well as applications of the GridLAB-D software to distribution level analysis. He also performs research relating to small signal stability of interarea oscillations on the power grid.

Research Interests

Distribution level modeling
PHEV grid interactions
Small signal stability of power systems
Communication systems

Education

- Ph.D. Electrical Engineering, University of Wyoming, 2008
- M.S. Electrical Engineering, University of Wyoming, 2004



Engineer
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Steve Widergren

Steve Widergren contributes to new solutions for reliable operation of electric power systems. Common throughout his career is the application of information technology to power engineering problems including, simulation, control, and system integration. Mr. Widergren is a principal engineer at Pacific Northwest National Laboratory (PNNL) and is the 2010/2011 Plenary Chair for the Smart Grid Interoperability Panel, a group established by the National Institute of Standards and Technology to advance interoperability of smart grid devices and systems through the coordination of standards and best practices. He was recently Administrator for the GridWise Architecture Council – a group formed to enable interoperability of automated systems related to the electric system.

Before joining PNNL, Mr. Widergren was a corporate engineer at ESCA, now AREVA T&D, an electricity control center supplier. He previously worked at American Electric Power and interned at Pacific Gas and Electric. In these positions, he engineered and managed energy management systems products for electric power operations and supported power system computer applications. Application areas include information modeling, SCADA systems, and power system reliability assessment tools.

Education

- B.S. and M.S. Electrical Engineering, University of California, Berkeley



Electric Grid Research Manager

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Tracy Yount

Tracy Yount has over 25 years experience in energy and environmental management. Mr. Yount's experience in the electric utility industry provides a unique insight for the practical application of technology, policy, and regulatory requirements. Mr. Yount has worked directly with state and federal delegation members on energy policy, environmental regulation, and the design of carbon markets.

He has successfully led management, engineering, biological, and political teams to achieve regulatory requirements while simultaneously generating revenue opportunities. Mr. Yount joined Pacific Northwest National Laboratory in 2009 to support the national energy and environmental agenda of energy independence with a smarter, cleaner, and more capable energy infrastructure.

Research Interests

Policy and practical nexus between energy technologies, evolving carbon markets, and current regulatory frameworks.

Education

- B.S. Engineering and Architecture Management, Washington State University, 1991



Senior Research Engineer

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Ning Zhou

Ning Zhou has been with Pacific Northwest National Laboratory since 2005, where he is currently a power system engineer. From 1995 to 2000, Dr. Zhou was an assistant professor in the Automatic Control Department at Beijing Institute of Technology. He is an IEEE senior member.

Dr. Zhou has authored or co-authored 11 journal papers, 18 conference papers, and 6 technical reports. One paper received the Technical Committee Prize Paper Award from the IEEE/PES Power System Dynamic Performance Committee for 2009 as the first author.

Research Interests

Power system small signal stability and control

State estimation using phasor measurement unit data

Power market

Signal processing/system identification/control system and their application in power systems

Education

- Ph.D. Signal Processing, University of Wyoming, 2005
- M.S. Automatic Control, Beijing Institute of Technology, 1995
- B.Eng. Automatic Control, Beijing Institute of Technology, 1992