

# Kevin Paul Schneider, Ph.D., PE, FIEEE

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## Experience and Education

### Pacific Northwest National Laboratory

Chief Engineer (2018-Present)

Principal Research Engineer (2014-2018)

Staff Research Engineer (2011-2014)

Senior Research Engineer (2008-2011)

Research Engineer (2006-2008)

- Distribution and Microgrid System Analysis – PI for PNNLs resilient distribution and microgrid analysis team. This team has conducted numerous studies for the DOE and utilities, including:
  - The development of distribution level dynamics analysis capabilities for the evaluation of micro grids ability to support resiliency operations. This capability has allowed traditional transmission level transient analysis to be extended to the distribution level on full size system models.
  - The development of analysis capabilities to determine a distribution circuits ability to host solar PV, and to determine mitigation strategies to support up to 100% penetration.
  - Other areas of distribution including, but not limited to: studies of low voltage networks, studies of cold load pick up, and microgrid operations.
- GridAPPS-D – Co-PI for PNNLs ADMS platform development program. This program is developing an open-source platform for the development of ADMS applications that are integrated across DMS, EMS, BMS, OMS, MDM, and AMI.
- SPIDERS Operational Evaluation – PI and Operational Test Agent for Smart Power Infrastructure Demonstration for Energy Security (SPIDERS). This is a joint DOE/DoD/DHS micro grid program examining the integration of high levels of renewables in a cyber-secure environment. Primary roles were as the Operational Test Agent for the formal project evaluation, and as the Assistant Transmission Manager. Three separate operational systems were deployed.
- VVO Evaluations – PI for PNNLs multi-disciplinary VVO analysis team. This has included studies for the Department of Energy as well as evaluations of deployed commercial products for utilities.

### University of Washington

Affiliate Associate Professor (2017-Present)

Affiliate Assistant Professor (2010-2017)

- Professor EE-457 (Distribution System Analysis)
- Professor EE-558 (Substation and Distribution Automation)
- Professor EE-559 (Advanced Topics in Smart Grid Analysis)

### Washington State University

Research Professor (2019-Present) [Joint appointment as part of PNNL/WSU Advanced Grid institute (AGI)]

Adjunct Professor (2007-2019)

- Professor EE-521 (Advanced Power System Analysis)
- Professor EE-361 (Electrical Power Systems)

### Ph.D., Electrical Engineering-Power Systems (2005)

University of Washington, Seattle Washington

Dissertation: “Analysis of Interactions between Critical Power and Telecommunications Infrastructures”

## M.S., Electrical Engineering-Power Systems (2002)

University of Washington, Seattle Washington

Thesis: "A Method for the Reduction of Inter-Machine Oscillations in Hybrid Micro Grids"

## B.S., Physics (2001)

University of Washington, Seattle Washington

-With distinction in Physics

## United States Navy (1992-1998)

U.S.S. Los Angeles (SSN-688) – Nuclear Electrician (EM2/SS) (1994-1998)

Naval Nuclear Power Training (1992-1994)

### Journal Articles

#### • In Pre-Publishing (Accepted)

- X. Wu, Y. Xu, X. Wu, J. He, J. Guerrero, C. C. Liu, **K. P. Schneider**, and D. Ton, "A Two-Layer Distributed Control Method for Islanded Networked Microgrid Systems," *Accepted IEEE Trans. on Smart Grid*.
- W. Du, Z. Chen, **K. P. Schneider**, R. H. Lasseter, S. Pushpak, F. K. Tuffner, and S. Kundu, "A Comparative Study of Two Widely Used Grid-Forming Droop Controls on Microgrid Small Signal Stability," *Accepted, Special Issue on Modeling, Topology and Control of Grid-Forming Inverters of IEEE Journal of Emerging and Selected Topics in Power Electronics*

#### • Published

- C. Cañizares, J. Riley, R. Palma-Behnke, et. al., "Microgrid Stability Definitions, Analysis, and Examples," *IEEE Trans. On Power Systems*, vol. 35, no. 1, pp. 13-29, Jan. 2020.
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- Y. Wang, Y. Xu, J. He, C. C. Liu, **K. P. Schneider**, M. Hong, and D. Ton, "Coordinating Multiple Sources for Service Restoration to Enhance Resilience of Distribution System," *IEEE Trans. on Smart Grid*, vol. 10, no. 5, pp. 5781-5793, Jan. 2019.
- F. K. Tuffner, **K. P. Schneider**, J. Hansen, and M. A. Elizondo "Modeling Load Dynamics to Support Resiliency based Operations in Low Inertia Microgrids," *IEEE Trans. on Smart Grid*, vol. 10, no. 3, pp. 2726-2737, May 2018.
- R. R. Jha, A. Dubey, C. C. Liu, and **K. P. Schneider**, "Bi-Level Volt-VAR Optimization to Coordinate Smart Inverters with Voltage Control Devices," *IEEE Trans. on Power Systems*, vol. 34, no. 3, pp. 1801-1813, May 2019.
- **K. P. Schneider**, F. K. Tuffner, M. Elizondo, J. Hansen, J. Fuller, and D. Chassin, "Adaptive Dynamic Simulations for Distribution Systems using Multi-State Load Models," *IEEE Trans. on Smart Grid*, vol. 10, no. 2, pp. 2257-2266, Jan. 2019.
- **K. P. Schneider**, S. Laval, J. Hansen, R. Melton, L. Ponder, L. Fox, J. Hart, J. Hambrick, M. Buckner, M. Baggu, K. Prabakar, M. Manjrekar, S. Essakiappan, L. Tolbert, Y. Liu, J. Dong, L. Zhu, A. Smallwood, A. Jayantilal, C. Irwin, G. Yuan, "A Distributed Power System Control Architecture for Improved Distribution System Resiliency," *IEEE Access*, vol. 7 no. 1, pp. 9957-9970, Jan. 2019.
- Y. Xu, C. C. Liu, Z. Wang, K. Mo, **K. P. Schneider**, F. Tuffner, and D. Ton, "DGs for Service Restoration to Critical Loads in a Secondary Network Distribution System," *IEEE Trans. on Smart Grid*, vol. 10, no. 1, pp. 435-447, Jan. 2019.
- **K. P. Schneider**, N. Radhakrishnan, Y. Tang, F. K. Tuffner, C. C. Liu, J. Xie, and D. Ton, "Improving Primary Frequency Response to Support Networked Microgrid Operations," *IEEE Trans. on Power Systems*, vol. 34, no. 1, pp. 659-667, Jan. 2019.
- **K. P. Schneider**, F. K. Tuffner, M. A. Elizondo, C. C. Liu, Y. Xu, S. Backhaus, and D. Ton, "Enabling Resiliency Operations across Multiple Microgrids with Grid Friendly Appliance Controllers," *IEEE Trans. on Smart Grid*, vol. 9, no. 5, pp. 4755-4764, Sept., 2018.

- R. Melton, **K. P. Schneider**, E. Lightner, T. McDermott, P. Sharma, Y.C. Zhang, F. Ding, S. Vadari, R. Podmore, A. Dubey, R. Wies, and E. Stephan, “Leveraging Standards to Create an Open Platform for the Development of Advanced Distribution Applications,” *IEEE Access*, vol. 6, pp. 37361-37370, June, 2018.
- **K. P. Schneider**, B. A. Mather, B. C. Pal, C. W. Ten, G. J. Shirek, H. Zhu, J. C. Fuller, J. L. R. Pereira, L. F. Ochoa, L. R. de Araujo, R. C. Dugan, S. Matthias, S. Paudyal, T. E. McDermott, and W. Kersting, “Analytic Considerations and Design Basis for the IEEE Distribution Test Feeders,” *IEEE Trans. on Power Systems*, vol. 33, no. 3, pp. 3181-3188, May 2018.
- Y. Xin, C. C. Liu, **K. P. Schneider**, F. Tuffner, and D. Ton, “Microgrids for Service Restoration to Critical Load in a Resilient Distribution System,” *IEEE Trans. on Smart Grid*, vol. 9, no. 1, pp 426-437, Jan., 2018.
- R. Uluski, J. Kumar, S.S. Venkata, D. Vishwakarma, **K. P. Schneider**, A. Mehrizi-Sani, R. Terry, and W. Agate, “Microgrid Controller Design, Implementation, and Deployment: A Journey from Conception to Implementation at the Philadelphia Navy Yard,” *IEEE Power and Energy Magazine*, vol. 15, no. 4, pp. 50-62, June 2017.
- **K. P. Schneider**, F. K. Tuffner, M. A. Elizondo, C. C. Liu, Y. Xu, and D. Ton, “Evaluating the Feasibility to use Microgrids as a Resiliency Resource,” *IEEE Trans. on Smart Grid*, vol. 8, no. 2, pp. 687-696, March 2017.
- M. A. Elizondo, F. K. Tuffner, and **K. P. Schneider**, “Simulation of Inrush Dynamics for Unbalanced Distribution Systems using Dynamic Phasor Models,” *IEEE Transaction on Power Systems*, vol. 32, no. 1, pp. 633-642, Jan. 2017.
- **K. P. Schneider**, E. Sortomme, M. T. Miller, S. S. Venkata, and L. Ponder, “Evaluating the Magnitude and Duration of Cold Load Pick-up using Multi-State Load Models,” *IEEE Trans. on Power Systems*, vol. 31, no. 5, pp. 3765-3774, Sept. 2016.
- Y. Xu, C. C. Liu, **K. P. Schneider**, and D. Ton, “Placement of Remote-Controlled Switches for Distribution System Restoration,” *IEEE Trans. on Power Systems*, vol. 31, no. 2, pp. 1139-1150, Mar. 2016.
- M. A. Elizondo, F. K. Tuffner, **K. P. Schneider**, “Three-phase Unbalanced Transient Dynamics and Powerflow for Modeling Microgrids with Synchronous Machines,” *IEEE Trans. on Power Systems*, vol. 31, no. 1, pp. 105-115, Jan. 2015.
- **K. P. Schneider**, E. Lightner, and Jason Fuller, “Estimating System-wide Impacts of Smart Grid Demonstrations,” *IEEE Trans. on Power Systems*, vol. 30, no. 2, pp. 980-988, Mar. 2015.
- J. Li, X. Ma, C.C. Liu, and **K. P. Schneider**, “Distribution System Restoration with Microgrids Using Spanning Tree Search,” *IEEE Trans. on Power Systems*, vol. 29, no. 6, pp. 3021-3029, Nov. 2014.
- **K. P. Schneider** and T. Weaver, “A Method for Evaluating Volt-VAR Optimization Field Demonstrations,” *IEEE Trans. on Smart Grid*, vol. 5, no. 4, pp. 1696-1703, July 2014.
- B. Palmintier, B. Lundstrom, B. Chakraborty, T. Williams, **K. P. Schneider**, and D. Chassin, “A Power-Hardware-in-the-Loop Platform with Remote Distribution Circuit Co-Simulation,” *IEEE Trans. on Industrial Electronics*, vol. 62, no. 4, pp. 2236-2245, April 2014.
- **K. P. Schneider**, J. Fuller, and D. Chassin, “Multi-State Load Models for Distribution System Analysis,” *IEEE Trans. on Power Systems*, vol. 26, no. 4, pp. 2425-2433, Nov. 2011.
- J. Li, C. C. Liu, **K. P. Schneider**, “Controlled Partitioning of a Power Network Considering Real and Reactive Power Balance”, *IEEE Trans. on Smart Grid*, vol. 1, no. 3, pp. 261-269, Dec. 2010.
- P. Wong, **K. P. Schneider**, P. Mackey, H. Foote, G. Chin, R. Guttromson, and J. Thomas, “A Novel Visualization Technique for Electric Power Grid Analytics,” *IEEE Trans. on Visualization and Computer Graphics*, vol. 15, no. 3, pp. 410-423, Mar. 2009.
- **K. P. Schneider**, C. C. Liu, and J. P. Paul, “Assessment of interactions between power and telecommunications infrastructures,” *IEEE Trans. on Power Systems*, vol. 21, no. 3, pp. 1123-1130, July 2006.
- **K. P. Schneider**, C. C. Liu, and B. Howe, “Topology Error Identification for the NEPTUNE Power System,” *IEEE Trans. on Power Systems*, vol. 20, no. 3, pp. 1224-1232, Aug. 2005.

## Technical Reports

- M. Farrokhhabadi et. al., “Microgrid Stability definitions, Analysis, and Modeling,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-27531, 2018.

- **K. P. Schneider** and W. Du, “Improving Resiliency of Puerto Rico Electric System (Distribution),” Pacific Northwest National Laboratory, Richland, Washington, PNNL-27573, 2018.
- F. Tuffner, **K. P. Schneider**, C. C. Liu, Y. Tang, N. Radhakrishnan, P. Thekkumparambath Mana, Y. Liu, B. L. Thayer, M. A. Elizondo, S. Gourisetti, K. Mo, and Z. Wang, “Resilient Electric Distribution Grid R&D (Smart Cities),” Pacific Northwest National Laboratory, Richland, Washington, PNNL-26943, 2017.
- R. Melton, **K. P. Schneider**, T. McDermott, and S. Vadari, “GridAPPS-D Conceptual design V1.0,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-26340, 2017.
- J. Hansen and **K. P. Schneider**, “Use of Advanced Metering Infrastructure Data for Secondary Service Transformer Phase Identification,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-26559, 2017.
- Y. Agalgaonkar, **K. P. Schneider**, C. Marinovici, R. Melton, and S. Vadari, “ADMS State of the Industry and Analysis Gap,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-26361, 2017.
- T. F. Sanquist and **K. P. Schneider**, “GridAPPS-D Evaluation Framework: A Systems Engineering Approach,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-26362, 2017.
- **K. P. Schneider**, F. Tuffner, M. Elizondo, P. Phanivong, and J. Hansen, “Improving Distribution Resiliency in Urban Cores with Coordinated Microgrid Operations,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-25906, 2016.
- A. Guerra, A. Gebeyehu, S. Collins, **K. P. Schneider**, J. Fuller, E. Mayhorn, S. Sridhar, and A. Dinkel, “Determining PV Penetration Native Limits of 15 Most Representative Circuits in SCE Territory,” Southern California Edison, Rosemead, California, PNNL-25313, 2016.
- A. Guerra, A. Gebeyehu, S. Collins, **K. P. Schneider**, J. Fuller, E. Mayhorn, S. Sridhar, and A. Dinkel, “Mitigation Paths of 15 Most Representative Circuits in SCE Territory,” Southern California Edison, Rosemead, California, PNNL-25445, 2016.
- **K. P. Schneider**, J. Barr, and M. Hadley, “Utility Assessment Report for SPIDERS Phase 3: Camp Smith,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-25295, 2016.
- **K. P. Schneider**, J. Barr, and M. Hadley, “Quick Look Report for SPIDERS Phase 3: Camp Smith,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-25175, 2016.
- **K. P. Schneider**, J. Barr, M. Hadley, and T. Sanquist, “Integrated Assessment and Operational Demonstration for SPIDERS Phase 3: Camp Smith,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-24587, 2015.
- F. Tuffner, T. Williams, **K. P. Schneider**, M. Elizondo, Y. Sun, C. C. Liu, Y. Xu, and S. Gourisetti, “Improving Distribution Resiliency with Microgrids and State and Parameter Estimation,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-24745, 2015.
- **K. P. Schneider**, M. Hadley, and S. Zabriskie, “Framework for Quantifying the Risks and Impacts Associated with the Adoption of Smart Grid Technologies,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-24556, 2015.
- **K. P. Schneider**, C. C. Liu, F. Tuffner, Y. Xu, and M. Elizondo, “Microgrids as a Resiliency Resource,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-23674, 2014.
- T. Williams and **K. P. Schneider**, “Re-evaluation of Yukon Integrated Volt VAR Control for American electric Power Public Service Company of Oklahoma,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-23082, 2014.
- J. Barr, F. K. Tuffner, M. D. Hadley, and **K. P. Schneider**, “Utility Assessment Report for SPIDERS Phase 2: Ft. Carson (Rev 1.0),” Pacific Northwest National Laboratory, Richland, Washington, PNNL-SA-24030, 2014.
- J. Barr, F. K. Tuffner, M. D. Hadley, and **K. P. Schneider**, “Utility Assessment Report for SPIDERS Phase 2 Addendum: Ft. Carson (Rev 1.0),” Pacific Northwest National Laboratory, Richland, Washington, PNNL-SA-24029, 2014.
- **K. P. Schneider**, S. Kreyling, J. Barr, and F. Tuffner, “Quick Look report for SPIDERS Phase 1: Joint Base Pearl Harbor Hickam,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-22226, 2013.
- **K. P. Schneider**, J. L. Barr, F. K. Tuffner, S. J. Kreyling, J. C. Fuller, and T. F. Sanquist, “Utility Assessment Report for SPIDERS Phase 1: Joint Base Pearl Harbor Hickam (Rev 2.0),” Pacific Northwest National Laboratory, Richland, Washington, PNNL-22533, 2013.
- **K. P. Schneider**, J. L. Barr, F. K. Tuffner, S. J. Kreyling, J. C. Fuller, and T. F. Sanquist, “Utility Assessment

- Report for SPIDERS Phase 1 Addendum: Joint Base Pearl Harbor Hickam (Rev 2.0),” Pacific Northwest National Laboratory, PNNL-22532, Richland, 2013.
- **K. P. Schneider**, T. Williams, F. Tuffner, Y. Zhang, M. Rice, and B. Van Kirk, “Modeling and Simulation Capabilities for the Evaluation of Microgrids,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-22813, 2013.
  - J. Barr, F. Tuffner, M. Hadley, S. Kreyling, and **K. P. Schneider**, “Integrated Assessment Plan Template and Operational Demonstration for SPIDERS Phase 2: Fort Carson,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-22733, 2013.
  - **K. P. Schneider**, E. Mayhorn, and J. Fuller, “Evaluation of CVVC with the Addition of Distribution Feeder Upgrade and/or Load Transfers,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-23047, 2013.
  - C. Bonebrake and **K. P. Schneider**, “C/PEaRLS Test Report,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-2218, 2013.
  - **K. P. Schneider**, J. Fuller, F. Tuffner, R. Singh, C. Bonebrake, N. Kumar, and B. Vyakaranam, “Evaluation of Representative Smart Grid Investment Grant Project Technologies: Summary Report,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-20892, 2012.
  - **K. P. Schneider**, S. Kreyling, J. Barr, J. Fuller, F. Tuffner, and T. Sanquist, “Integrated Assessment Plan Template and Operational Demonstration for SPIDERS Phase 1: Joint Base Pearl Harbor Hickam,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-92207, 2012.
  - **K. P. Schneider**, J. Fuller, F. Tuffner, D. Wu, M. Elizondo, M. Rice, A. Somani, A. Fisher, B. Vyakaranam, “Modeling and Simulation Capabilities for Evaluation of Micro Grids,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-22194, 2012.
  - **K. P. Schneider**, T. Williams, “Evaluation of Coopers Integrated Volt VAR Control (IVVC) for American Electric Power Public Service Company of Oklahoma,” Battelle Memorial Institute, Seattle, Washington, PNNL-22108, 2012.
  - **K. P. Schneider**, C. Bonebrake, A. Fisher, and J. Hammerstrom, “Maui Smart Grid Demonstration Project: System Impact Study,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-21848, 2012.
  - **K. P. Schneider** and C. Bonebrake, “Evaluation of Smart Grid Investment Grant Project Technologies: Distribution Automation,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-20546, 2011.
  - **K. P. Schneider**, F. Tuffner, J. Fuller, and R. Singh, “Evaluation of Conservation Voltage Reduction (CVR) on a National Level,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-19596, 2010.
  - **K. P. Schneider**, J. Fuller, F. Tuffner, R. Singh, and Y. Chen, “Evaluation of General Electric’s Coordinated Volt VAR Control (CVVC) for American Electric Power,” Battelle Memorial Institute, Seattle, Washington, PNWD-4231, PNWD-4184, PNWD-4142, 2010.
  - **K. P. Schneider**, J. Fuller, F. Tuffner, and Y. Chen, “Modern Grid Strategy: enhanced GridLAB-D capabilities Final Report,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-18864, 2009.
  - **K. P. Schneider**, Y. Chen, D. Chassin, R. Pratt, D. Engel, and S. Thompson, “Modern Grid Initiative Distribution Taxonomy Final Report,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-18035, 2008.
  - M. Kintner-Meyer and **K. P. Schneider**, “Impact Assessment of Plug-in Hybrid Vehicles on Electric Utilities and Regional U.S. Power Grids Part 1: Technical analysis,” Pacific Northwest National Laboratory, Richland, Washington, PNNL-16336, 2007.
  - **K. P. Schneider**, “Parallelization of the Newton-Raphson Power Flow Algorithm,” Pacific Northwest National Laboratory, Richland, Washington, PNWD-3733, 2006.

### Conference Papers

- J. Dong, L. Zhu, P. Kritprajun, Y. Liu, L. Tolbert, J. Hambrick, and K. P. Schneider, “Quantitative Evaluation of Reliability Improvement: Case Study on a Self-healing Distribution System,” in *proc. IEEE PES Innovative Smart Grid Technologies Conference*, 2020.
- B. L. Thayer, D. W. Engel, I. Chakraborty, K. P. Schneider, L. Ponder, and K. Fox, “Improving End-Use Load Modeling Using Machine Learning and Smart Meter Data,” in *proc. Hawaii International Conference on System Science*, 2020.

- J. Xie, M. A. Elizondo, F. K. Tuffner, and K. P. Schneider, “Dynamic-Phasor Model of Transformer Inrush Simulation for Unbalanced Distribution System,” in *proc. IEEE PES T&D Conference and Exposition*, 2020.
- R. Melton, K. P. Schneider, and S.V. Vadari, “GridAPPS-D™ a distribution management platform to develop applications for rural electric utilities,” in *proc. IEEE Rural Electric Power Conference*, 2019.
- S. Essakiappan, R. Sarup, R. Mbacke, M. Manjrekar, S. Laval and K. Schneider, “Coordinated Power and Energy Management Using Cluster of Microgrids to Improve Grid Availability and Resiliency”, in *proc. IEEE Energy Conversion Congress and Exposition*, 2019.
- R. Melton, K. P. Schneider, and S. V. Vadari, “GridAPPS-D™ a Distribution Management Platform to Develop Applications for Rural Electric Utilities,” in *proc. IEEE Rural Electric Power Conference*, 2019.
- S. Kundu, W. Du, S. Nandanoori, F. K. Tuffner, and K. P. Schneider, “Robust Plug-and-Play Redesign of Dynamical Networks: A Microgrid Application,” in *proc. American Controls Conference*, 2019.
- B. L. Thayer, D. W. Engel, and K. P. Schneider, “Load Modeling with Smart Meter Data for Advanced Volt-VAR Optimization Applications,” in *proc. IEEE PES General Meeting*, 2019.
- B. P. Bhattarai, J. Alam, J. Hansen, K. P. Schneider, N. Radhakrishnan, and W. Du, “Enhancing Distribution System Resiliency through a Novel Transactive Energy System Framework,” in *proc. IEEE PES General Meeting*, 2019.
- W. Du, K. P. Schneider, F. K. Tuffner, Z. Chen, and R. Lasseter, “Modeling of Grid-Forming Inverters for Transient Stability Simulations of an all Inverter-based Distribution System”, in *proc. Innovative Smart Grid Technologies*, 2019.
- K. Mo, C. C. Liu, K. P. Schneider, F. Tuffner, and D. Ton, “Resilience of Distribution Systems: Concepts and Enhancement Approaches,” in *proc. Power & Energy Automation Conference*, 2018.
- D. Wu, K. P. Schneider, S. Kundu, F. K. Tuffner, Z. Chen, and R. H. Lasseter, “Comparative Study of the Impact of Two Widely Used Grid-Forming Droop Controls on Microgrid Stability,” in *proc. IEEE PES General Meeting*, 2018.
- F. K. Tuffner, N. Radhakrishnan, Y. Tang, and K. P. Schneider, “Grid Friendly Appliance Controllers to Increase the Dynamic Stability of Networked Resiliency-based Microgrids,” in *proc. IEEE PES T&D Conference and Exposition*, 2018.
- F. D’Agostino, F. Silestro, C. C. Liu, Y. Xu, K. P. Schneider, D. Ton, “Reliability Assessment of Distribution Systems Incorporating Feeder Restoration Actions,” in *proc. IEEE Power System Computation Conference*, 2016.
- Y. Xu, C. C. Liu, K. P. Schneider, and D. Ton, “Toward a Resilient Distribution System,” in *proc. IEEE PES General Meeting*, 2015.
- K. P. Schneider, P. Phanivong, and J. Lacroix, “IEEE 342-Node Low Voltage Networked Test System,” in *proc. IEEE PES General Meeting*, 2014.
- K. P. Schneider and T. Weaver, “Volt-VAR Optimization on American Electric Power Feeders in Northeast Columbus,” in *proc. IEEE PES T&D Conference and Exposition*, 2012.
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- K. P. Schneider and J. Fuller, “Detailed Analysis of Distribution System Voltage Reduction,” in *proc. Distributech*, 2010.
- K. P. Schneider and J. Fuller, “Voltage Control Devices on the IEEE 8500 Node Test Feeder,” in *proc. IEEE PES T&D Conference and Exposition*, 2010.

- K. P. Schneider, Y. Chen, D. Engle, and D. Chassin, "A Taxonomy of North American Radial Distribution Feeders," in *proc. IEEE PES General Meeting*, 2009.
- K. P. Schneider, Z. Huang, M. Hauer, "Dynamic State Estimation Utilizing High Performance Computing Methods," in *proc. IEEE PES Power System Conference and Exposition*, 2009.
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- K. P. Schneider, D. Chassin, Y. Chen, J. Fuller, "Distribution Power Flow for Smart Grid Technologies," in *proc. IEEE PES Power System Conference and Exposition*, 2009.
- K. P. Schneider, C. Gerkenmeyer, M. Kintner-Meyer and R. Fletcher, "Impact Assessment of Plug-In Hybrid Vehicles on Pacific Northwest Distribution Systems," in *proc. IEEE PES General Meeting*, 2008.
- R. Baldick, B. Chowdhury, I. Dobson, Z.Y. Dong, B. Gou, D.L. Hawkins, Z. Huang, M. Joung, D. Kirschen, L. Fangxing, L. Juan, L. Zuyi, C. C. Chen-Ching, M. Lamine, S. Miller, R. Podmore, K. P. Schneider, K. Sun, D. Wang, Z. Wu, P. Zhang, W. Zhang, and X. Zhang, "Initial Review of Methods for Cascading Failure Analysis in Electric Power Transmission Systems," in *proc. IEEE PES General Meeting*, 2008.
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- K. P. Schneider and C. C. Liu, "Innovations in Protection and Control to Avoid Widespread Blackouts," in *proc. 6<sup>th</sup> International Conference on Power Systems Operations and Planning*, 2005.
- K. P. Schneider and C. C. Liu, "A Proposed Method of Partially-Decentralized Power System Protection," in *proc. 2<sup>nd</sup> International Conference on Critical Infrastructures*, 2004.
- K. P. Schneider and C. C. Liu, "Topology Error Identification for the NEPTUNE Power System Using an Artificial Neural Network," in *proc. IEEE PES Power Systems Conference and Exposition*, 2004.
- C. C. Liu, K. P. Schneider, B. Howe, and H. Kirkham, "State Estimation for the NEPTUNE Power System," in *proc. IEEE Transmission and Distribution Conference*, 2003.
- K. P. Schneider, C. C. Liu, T. McGinnis, B. Howe, and H. Kirkham, "Real-Time Control and Protection of the NEPTUNE Power System," in *proc. MTS/IEEE Oceans Conference and Exhibition*, 2002.

## Patents

- Development of method for evaluating benefits of Volt VAR control and verification (10,416,206)
- Decision support systems and methods for complex systems (8,126,804)
- Method of evaluating change in energy consumption due to Volt VAR optimization (Pending)
- Grid Stabilization using adjusted voltage regulator response to grid characteristics (Pending)

## Professional Society Involvement

- Licensed Professional Engineer in Washington State (2008-Present)

- IEEE Member
  - Fellow (2020-Present)
  - Senior Member (2008-2019)
  - Member (2005-2008)
  - Student Member (2000-2005)
- Editor IEEE Transactions on Smart Grid (2017-Present)
- IEEE Standards
  - P1729 “Recommended Practices for Electric Power Distribution System Analysis,” (2010-Completion)
  - P1885 “Guide for Assessing, Measuring and Verifying Volt-Var Control Optimization on Distribution Systems”, (2014-Present)
  - P2030.7 “Standard for the Specification of Microgrid Controllers,” (2015- Completion)
  - P2030.8 “Standard for the Testing of Microgrid Controllers,” (2015- Completion)
  - P2030.12 “Guide for the Design of Microgrid Protection Systems,” (2018-Present)
- Analytic Methods for Power Systems (AMPS) Technical Committee [Previously PSACE]
  - Chair (2019-Present)
  - Vice-Chair (2017-2018)
  - Secretary (2015-2016)
  - PES General Meeting PSACE Technical Committee Program Chair (2013 & 2014)
- Distribution System Analysis Subcommittee (DSAS)
  - Chair (2013-2014)
  - Vice-Chair (2011-2012)
  - Secretary (2009-2010)
- IEEE Scholarship Plus
  - Region 6 Committee Chair (2016-2018)
  - Region 6 Committee Member (2013-2018)
- Seattle Chapter of the IEEE Power and Energy Society
  - Chair (2013-2014) [Outstanding Large Chapter 2014]
  - Vice-Chair (2011-2012)
- Richland Chapter of the IEEE Power and Energy Society
  - Chair (2008-2009)
  - Secretary (2006-2007) [Outstanding Small Chapter 2006]
- North West Energy System Symposium (NWESS)
  - Vice-Chair (2014-2016)
  - Planning Committee (2010-Present)

## Awards

- Presidential Early Career Award for Scientists and Engineers (PECASE): 2019
- IEEE PES Douglas M. Staszky Distribution Automation Award: 2019
- IEEE PES AMPS Technical Committee Distinguished Service Award: 2014
- PNNL Exceptional Contribution Award: 2012, 2013, 2014, 2016, 2017
- PNNL Outstanding Performance Award: 2007, 2009, 2010, 2018