**Aoxia "Kevin" Chen, P.E.[[1]](#footnote-1), Ph.D., M.B.A.**

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**EDUCATION**

1. **Colorado School of Mines, Golden, CO 80401**

Focus on "**Energy Systems, Renewable Energy, Energy Economics and Electric Power**"

Advisor: Dr. P.K. Sen, PE, Fellow IEEE, Emeritus Professor

* Ph.D. in Electrical Engineering

Dissertation Title: “A Techno-economic Approach to Optimization of

Large-Scale Battery Energy Storage Applications at Transmission Level”

1. **Johns Hopkins University, Baltimore, MD, 21218**

* Master of Business Administration with a concentration in Finance

1. **Cornell University, Ithaca, NY, 14850**

* Master of Science in Legal Studies degree candidate (Anticipated completion: May 2023)

1. **Chartered Financial Analyst (CFA) Institute, VA, 22902**

* CFA Level II Certificate

**ADVANCED RELEVANT (Selected) COURSES**

• Power Distribution Systems Engineering • Advanced Electrical Machine Dynamics • Advanced Power Electronics • Power System Analysis • Power System Protection and Relaying • Statistical Methods • Power System Operation and Management • Information Systems Science • Mathematical Economics

• Financial Modeling and Valuation • Quantitative Financial Analysis • Data Analytics

• Derivatives • Accounting and Financial Reporting • Fixed Income

• High Voltage AC and DC Transmission. • Independent Research (Energy, Power, and Renewable Energy)

**SKILLS / MISCELLANEOUS**

• Computer: DIgSILENT Power Factory, CDEGS, CYMCAP, SKM, ETAP, MATLAB, R-programming, PSIM, AutoCAD-Electrical, PowerWorld, SimPower, Simulink, PLECS, PSS/E, PSLF, ASPEN, TARA

• Language: Fluent in English and Mandarin

• Works well independently or in a team environment

• Won a national scholarship to study abroad at Colorado School of Mines during junior year in college

• Excellent leadership skills, positive and cheerful character

**CERTIFICATION**

• Registered Professional Electrical Engineer in California

• Registered Professional Electrical Engineer in Texas

• Rockwell Automation ControlLogix Fundamentals and Troubleshooting

• Passed Level II of the Chartered Financial Analyst (CFA) Program

**EXPERIENCE**

**1) Electric Power Engineers Inc., Senior Engineering Manager** Jan 2022 – Present

Lead and manage an Engineering team and act as the technical expert in matters related to renewable generation.

**2) Electric Power Engineers Inc., Engineering Manager** Sep 2020 – Jan 2022

Support in running EMT studies for Sub-synchronous Oscillations studies (SSO). Lead and manage an Engineering team and act as the technical expert in matters related to renewable generation. Create and validate PSLF, PSS/E, and PSCAD models for renewable generations. Perform NERC compliance technical analysis. Perform tasks including electrical transmission/distribution systems analysis, generation interconnection studies, load flow analysis, dynamic studies, reactive deficiency study, transient stability analysis, short circuit, and voltage analysis. Support generation clients manage and respond to communications with the Transmission Service Provider (TSP) and Independent System Operators (ISO) for the respective interconnection queue positions. Populate and review technical data in Interconnection Agreements (IA) documents for the existing projects. Support in tracking the tasks and maintaining a project status tracker updated based on the client's needs. Perform Renewable energy project preliminary design and modeling. Prepare responses to Requests for Proposals (RFPs) by providing a scope of work and time estimates for new projects. Develop and implement learning modules, procedures, and checklists for technical services and studies. Contribute and provide executive oversight for critical research, development, test, and evaluation efforts.

**3) Ulteig Engineers, Power Systems Studies Engineer** July 2019- Sep 2020

Involved in steady-state and dynamic analysis utilizing PSS/E. Produced NERC compliance studies such as TPL, PRC, and MOD to support Renewable Energy grid interconnection applications. Led the Battery Energy Storage team. Assisted owner on selecting preferred EPC or system integrator. Analyzed ISO/RTO storage interconnection rules and utility studies under an existing Interconnection Agreement (IA). Reviewed technical studies (steady-state, short circuit, stability, and facilities). Analyzed potential BESS applications and incentives. Analyzed potential BESS revenue stacking streams. Supported the owner in evaluating the technical-legal requirements during and following review of the commercial agreements (IA, PPA, etc.). Evaluated vendor and performance warranties. Developed preliminary designs and specs and supported obtaining market input from vendors and integrators based on an agreed-upon battery scope. Provided training to junior engineers.

**4) Black & Veatch, Electrical Engineer IV** July 2018-July 2019

Provided training and supervision in the renewable energy department, with direct reports from four junior-level Electrical Engineers. Led Electrical Engineers in conceptual and detailed Utility-scale and Distribution-level Wind Farm, Solar Farm, and Battery Energy Storage System Design, Independent Engineering, Owner's Engineering, and Renewable Energy Consulting.

**5) Renewable Energy Systems Americas (RES-Americas)**, **Electrical Design Engineer** Apr 2017-Jun 2018

Acted as the Lead Engineer for a total of 15 projects. Utilized DIgSILENT Power Factory to perform Wind Farm, Solar Station, and Battery Energy Storage Systems collection system design. Performed Grounding Study using CDEGS. Implemented Cable sizing and Ampacity Calculations using CYMCAP. Used SKM to perform Arc Flash Studies and Short Circuit Analyses. Participated in the design of Wind Farms, Solar PV Stations, and Battery Energy Storage Systems for a total of 500 MW power capacity.

**6) Tenova TAKRAF USA**, **Electrical Engineer** Jun 2015-Apr 2017

Developed the electrical portion of material handling solutions, including conceptual design, wiring diagrams, electrical control schematics, cable schedules, single-line diagrams, PLC I/O lists, P&ID schematics, E-house layouts as well as PLC cabinet layouts, field-test for PLC panels, VFDs, Switchgears, and E-houses, etc.

**7) Ulteig Engineers, Intern**  Mar 2015-Jun 2015

Helped provide services for substation design; designed lightning protection using rolling sphere method.

**8) Colorado School of Mines, Research Assistant**  Aug 2013-Mar 2015

Assisted junior and senior students in EE Department at Colorado School of Mines to gain fundamental knowledge of Power Electronics and Power System; assisted professors in grading exams, tests, and assignments.

Worked with Dr. P.K. Sen, P.E., IEEE Fellow, Professor of Electrical Engineering, relating to the topics of the interrelation of Plug-in Electric Vehicle (PEVs), Energy Storage Systems (ESSs), and Photovoltaic Distributed Generation Systems (PV-DGs). More specifically, using V2G (vehicle to grid) technology to achieve an efficient energy management system (EMS) to provide renewable energy support, ancillary services, and energy arbitrage in deregulated electricity markets.

**PUBLICATIONS & CONFERENCE PRESENTATIONS**

**J1.** Yaswanth Nag Velaga, Aoxia Chen, P. K. Sen, G. Krishnamoorthy, and A. Dubey, "Advancements in Co-simulation Techniques in Combined T&D Systems Analysis," Journal of Engineering, The Institution of Engineering and Technology (IET) IET 2019

**C1.** S. Maleki, T. Chakraborty, B. Yancey**, Aoxia Chen**, and H. Trahan, "Utility-Based Grid Forming Inverter Applications: Seamless Transition and Power Oscillation Damping," 2022 IEEE/PES Transmission and Distribution Conference and Exposition (T&D), New Orleans, LA, 2022, Paper ID: 2022TD0176-NH2eTUQbp

**C2. Aoxia Chen** and P. K. Sen, "Optimization of Large-Scale Battery Energy Storage Applications in Transmission System," 2020 IEEE T&D, Chicago, IL

**C3. Aoxia Chen,** Yaswanth Nag Velaga, Benjamin Kroposki, Anamika Dubey, Keith Malmedal, and P.K. Sen, "Battery Energy Storage Systems: Design and Application Guidelines for Rural Electric Cooperatives," 2020 IEEE REPC, San Antonio, TX.

**C4.** J. Ausmus, R. S. Carvalho, **Aoxia Chen,** Y. N. Velaga, and Y. Zhang, "Snapshot of Big Data Analytics in Power Systems," The IEEE International Conference on Smart Grid Synchronized Measurements and Analytics 2019 (IEEE SGSMA 2019), College Station, TX, May 2019.

**C5.** Yaswanth Nag Velaga, **Aoxia Chen**, Anamika Dubey, P.K. Sen, "Trends and Future of Rural Electric Utilities: Challenges and Opportunities," (Accepted), IEEE Rural Electric Power Conference (REPC), Bloomington, MN, April 2019

**C6.** **Aoxia Chen** and Y. N. Velaga, and P. K. Sen, "Future Electric Power Grid and Battery Storage," Texas Power and Energy Conference, College Station, TX, Feb. 2019.

**C7.** Y. N. Velaga, **A. Chen**, P. K. Sen, G. Krishnamoorthy, and A. Dubey, "Transmission-Distribution Co-Simulation: Model Validation with Standalone Simulation," 2018 North American Power Symposium (NAPS), Fargo, ND, 2018, pp. 1-6.

**C8. Aoxia Chen** and P. K. Sen, "Deployment of Battery Energy Storage System for Energy Arbitrage Applications," in Proc. 2016 North American Power Symposium (NAPS), Denver, CO, 2016, pp. 1-8.

**C9. Aoxia Chen** and P. K. Sen, "Advancement in Battery Technology: A State-of-the-Art Review," 2016 IEEE Industry Applications Society Annual Meeting, Portland, OR, 2016, pp. 1-10.

**POSTER PAPER PRESENTATIONS:**

1. "Snapshot of Big Data Analytics in Power Systems," The IEEE International Conference on Smart Grid Synchronized Measurements and Analytics 2019 (IEEE SGSMA 2019), College Station, TX, May 2019.
2. "Big Data Framework to Optimize Renewables and BESSs for Future Grid," IEEE PES General Meeting, Poster Session, August 2018.
3. "Framework to Analyze Interactions between Transmission and Distribution Systems with High DER Penetrations," PSERC, Poster Session, Dec 2017 & May 2018.
4. "Framework to Analyze Interactions between Transmission and Distribution Systems with High DER Penetrations," IEEE T&D Expo, Poster Session, April 2018.
5. "Advancement in Battery Technology: A State-of-the-Art Review," IEEE IAS Annual Meeting, Portland, OR, 2016.

**REFERENCES**

1. Dr. P.K. Sen, PE, Fellow IEEE 2) Hossein Tabrizi, PE, MSEE

Colorado School of Mines Ulteig

Professor Senior Vice President, Power Tech Services

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1. Gopal Padmanabhan, PE, MSEE 4) Jason Ausmus, PE, Ph.D.

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1. Professional Engineer licensed in the states of California and Texas [↑](#footnote-ref-1)