# County Council of Howard County, Maryland

2020 Legislative Session

Legislative day # 14

**RESOLUTION NO. 60 - 2020**

Introduced by: Chairperson at the request of the County Executive

A RESOLUTION confirming the reappointment of Syed Ahmad to the Board of Electrical Examiners.

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Introduced and read first time on October 5, 2020.

By order Diane Schwartz Jones
Diane Schwartz Jones, Administrator to the County Council

Read for a second time and a public hearing held on October 19, 2020.

By order Diane Schwartz Jones
Diane Schwartz Jones, Administrator to the County Council

This Resolution was read the third time and was Adopted ✓, Adopted with amendments ___, Failed ___, Withdrawn ___ by the County Council on November 2, 2020.

Certified by Diane Schwartz Jones
Diane Schwartz Jones, Administrator to the County Council

NOTE: [[text in brackets]] indicates deletions from existing language; TEXT IN SMALL CAPITALS indicates additions to existing language. ~~Strike-out~~ indicates material deleted by amendment; Underlining indicates material added by amendment.

**WHEREAS,** Section 404 of the Howard County Charter and Section 6.300 of the Howard County Code provide for the County Executive to appoint and for the County Council to confirm nominees to Howard County Boards and Commissions created by law; and

**WHEREAS,** Sections 3.202 and 6.320 of the Howard County Code provide for a Board of Electrical Examiners in Howard County; and

**WHEREAS,** the County Executive has proposed the reappointment of Syed Ahmad as a member of the Board of Electrical Examiners; and

**WHEREAS,** the County Council ratifies the County Executive's special trust and confidence in the abilities of the nominee.

**NOW, THEREFORE, BE IT RESOLVED** by the County Council of Howard County, Maryland this 2nd day of November, 2020 that the following person is reappointed as a member of the Board of Electrical Examiners to serve from the passage of this Resolution to May 1, 2024 or until a successor is appointed and confirmed:

Syed Ahmad
Clarksville, Maryland

**EDUCATION:**

* Master of Electrical Engineering, the University of Saskatchewan (1993), Canada
  Thesis: Probabilistic Assessment of Spinning Reserve in Interconnected Generation System
* Bachelor of Electrical Engineering, NED University (1983)

**PROFESSIONAL REGISTRATION:**

* Professional Engineer (PE), Maryland and Missouri
* Senior Member IEEE

**COMMITTEE PARTICIPATION:**

ERAG MMWG: Actively participating in the Multiregional Modeling Working Group.
NERC SDT: Participating as team member in the Standard Drafting Teams.
NERC MVTF: Participating in the NERC Model Validation Task Force.
MISO/PJM/SPP TEP: Actively participating in the Transmission Expansion Planning Group
Chair IEEE Power Electronics Society.
IEEE: Volunteer judge for IEEE Robot Challenge.
FIRST Tech Challenge (FTC): Volunteer judge.
Baltimore Catholic Forensic League Debate: Volunteer judge.

**COMPUTER SKILLS:**

| | |
|---|---|
| Systems: | VAX/VMS, Windows 95, Windows NT, Windows XP, Windows Vista, Windows 2010, Apple Macintosh and IBM PC |
| Packages: | AutoCAD, Intergraph, Microsoft Word, WordPerfect, Microsoft Excel, Microsoft Access, Lotus 1-2-3, dBase IV, PROSYM, EMSS, GE-MARS, GE-PSLF, Siemens-PTI PSS/E, Siemens-PTI MUST, Siemens-PTI ODMS, Siemens-PTI MODWeb, Powerworld, Visio 5.0, Energy Velocity Suite, PROMOD, AEMPFAST |
| Languages: | FORTRAN 77, Qbasic |

**EXPERIENCE:**

**FERC (Federal Energy Regulatory Commission)**

Washington, DC
January 2006 – Present

The Federal Energy Regulatory Commission, or FERC, is an independent agency that regulates the interstate transmission of natural gas, oil, and electricity. FERC also regulates natural gas and hydropower projects. By enacting the Energy Policy Act of 2005, Congress entrusted the Commission with the duties of approving and enforcing rules to ensure the reliability of the Nation's Bulk-Power System and certifying an ERO that would be charged with developing and enforcing mandatory Reliability Standards, subject to Commission approval. Section 215(b)(1) of the FPA states that all users, owners, and operators of the Bulk-Power System in the United States will be subject to Commission-approved Reliability Standards.

**Position Title:** Electrical Engineer (Office of Electric Reliability - Division of Reliability Standards and Security/Division of Operation and Planning Standards) – March 2012 - Present

The responsibilities included

* Leading filings/projects for Reliability Standards: **Filings** - RM16-20-000 Remedial Action Scheme (RAS) Reliability Standard PRC-012-2, RM16-13 Approval of proposed Reliability Standards BAL-005-1 and FAC-001-3 and retirement of BAL-006-2, RM16-7 Reliability Standard BAL-002-2 (Disturbance Control Standard), RD17-1 Time Error Correction (BAL-004-0) Reliability Standard, RD18-6 Errata to Implementation Plan for the Revised Definition of Remedial Action Scheme under Docket No. RM15-13, RD20-9 Reliability Standard BAL-003-2, RD20-6 Reliability Standard PRC-024-3 Frequency and Voltage

Protection Settings for Generating Resources. **Projects** – Phase II of Project 2017-01 Modifications to Reliability Standard BAL-003-1.1 (Frequency Response and Frequency Bias Setting) and Project 2020-01 Modifications to MOD-032 (Data for Power System Modeling and Analysis).

* Back-up for Reliability Standards: **Filings** - RM16-22-000 Coordination of Protection Systems for Performance During Faults (PRC-027-1) and Specific Training for Personnel (PER-006-1), RD18-1 - Seeking approval to retire the WECC regional Reliability Standard VAR-002-WECC-2, RD18-2 - Seeking approval of proposed regional Reliability Standard BAL-004-WECC-3, RD18-3 - Seeking approval to retire the WECC regional Reliability Standard PRC-004-WECC-2. **Projects** – Standards Efficiency Review (SER), Microgrid Resiliency – A study that will look into resiliency of microgrid, and Lawrence Berkeley National Laboratory (LBNL) Study - Effect of Generation Fleet Composition on Grid Frequency Dip.
* Provided subject matter expertise on RM13-11(Frequency Response BAL-003-1), RD13-12 (Primary Frequency Response BAL-001-TRE-01), Project 2010-14.1 BARC - Reserves (BAL-001-2 and BAL-002-2), and Project 2006-02 Transmission Planning (RM12-1, footnote b) and Project 2010-11 Transmission Planning (RM13-9 TPL-001-4).
* **Audits** - Performed observation audit for Empire District Electric; Currently performing FERC lead RC audit for CAISO.
* Writing skills: filing summaries, Reliability Working Group (RWG) memos, Notice of Proposed Rulemaking (NOPRs), Final Rule, Commission Letter Order (CLO), and Delegations Letter Order (DLO).
* Communication skills: communicates clearly, competently, and precisely on diverse issues and questions. For example, as a team lead or team member monitoring the development of various Reliability Standards, expressed the staff's concerns and how to meet the Commission directives to standard drafting team.

**Position Title:** Electrical Engineer (Office of Electric Reliability - Division of Engineering, Planning, and Operation) – September 2007 – March 2012

The responsibilities included

* Evaluation of Topological and Impedance Element Ranking (TIER) Report and its effect on Grid - I lead the team in the analysis of identified TIER ranking by simulating contingencies and getting the reasonable solution on area(s) impacted. Guided other team member in simulation and analysis efforts. I used my modeling skills to contribute that project be developed on time and at the high-quality level.
* Order 1000 (Transmission Planning and Cost Allocation) – As a team member provided information on treatment of merchant transmission facilities in the regional plan and requirement of merchant transmission owner to meet regional reliability and operational efficiency under FERC order for negotiated rates. Reviewed the Interregional Coordination section and provided comments to team members. Provided to the team about ISO/RTO transmission project selection criteria to include in their expansion plan and powerflow models.
* Evaluated the Advanced Energy Management Power Flow Analysis System Technology (AEMPFAST/GRIDfast) software for load flow and optimization features.
* Actively involved as a team member in the Lawrence Berkley National Lab's Frequency Response Study, provided support related to ERCOT and Eastern Interconnection modeling issues.
* Performed load flow analyses in response to DOJ Inquiry on the Reliability Implication of Shutting down Gallagher Units 1 and 3 (Totaling 280 MW), Wabash River Units 2, 3, & 5 (Totaling 283 MW), and on the temporary shut down of Monroe Unit 2 (785 MW).
* Potential Retirement of Coal Fired Generation and its Effect on System Reliability – Performed steady-state reliability analysis for system as it is and system with retired coal generation.
* Reviewed and prepared a metrics for large utility companies FERC Form 715 filed planning criteria and guidelines for information and discussion purposes. Involved in training Staff engineers about filed 714/715 data verification and utilization using power flow software.
* Actively involved in NERC Reliability Standards petition, leading role in writing two chapters related to Facility (FAC) and Protection (PRC) for Staff Assessment Report and NOPR, reviewed comments submitted under Staff Assessment Report, provided technical support for MOD and INT chapters for the final NOPR (RM06-16).

* Reviewed and analyzed events reported via OE-417 and ES-ISAC e-mails, participated in the NERC-FERC bi-weekly conference call related to event analysis discussions. Performed voltage analysis for Con Edison system regarding an incident occurred on June 27th, 2007, which resulted in shutdown of Astoria West, Bruckner and Hell Gate substations.
* Provided technical support to tariff group on the Order 890 Attachment K (Transmission Planning Process) white paper and Order 890 rehearing issues.
* After reviewing the Large Generator Interconnection Procedures (LGIP) compliance fillings for different regions prepared a metrics indicating regional practices to perform studies and who else is participating in the study process. As a team member, provided technical assistance on CAISO LGIP (ER04-445), and MISO LGIP.
* Provided technical support to tariff group on the MISO Contingency Reserve Sharing Group case (ER06-1420 & ER08-1055), MISO Ancillary Service Market case (ER07-1372) and MISO Resource Adequacy case (ER08-398).
* Provided technical support to tariff group on the PJM Reliability Pricing Model (forward capacity market) case (ER05-1410).
* Performed NERC Reliability Readiness Evaluation/Audit related to Balancing Authority, Transmission Operator, Transmission Owner, and Reliability Coordinator as a part of audit team (those entities were MGE, SPP ICT, TVA, AEP, PacifiCorp, RDRC, SPP, LADWP, PEPCO).
* Providing technical assistance to the Staff of Tariff Group on cases related to generation interconnection (Order 2003-LGIP), generation interconnection queue process (AD08-2), transmission rate incentive (Order 679/679-A), Long-term Transmission Rights (Order 681/681-A), transmission cost allocation, TLR issues, ATC, PJM Simultaneous Import Limit analyses (using PSS/E and MUST software), revenue sufficiency guarantee and reliability assessment commitment for MISO.
* Provided technical assistance to the Staff of Office of Enforcement (OE) related to ATC and System Impact Study complaint by reviewing the study and data submitted.
* Backstop Siting – Worked on the Southern California Edison's proposed Dever-Palo Verde-2 500 kV transmission line backstop filing (PT08-1).
* Reviewed and analyzed PJM Regional Transmission Expansion Plan (RTEP) projects such as TrAIL (502 Junction-Mt. Storm-Meadow Brook-Loudon 500 kV line), PATH (Amos- Welton Spring-Kemptown 765 kV line), and MAPP (Possum Point-Calvert Cliffs-Indian River-Salem 500 kV line), in perspective of need for the projects, alternatives considered, status of projects, contingency plans, permitting and back-stop siting issues.
* Interact with other federal agencies such as DOE and OPM and NERC related to EIA-411 and EIA-860 data collection coordination on as need basis.
* Providing technical training related to power flow software to Engineering, Planning and Operation Groups on as need basis.
* Actively participated in the MISO Regional Generation Outlet Study (RGOS) studies to determine system needs along with integration of wind generation to meet renewable portfolio standard requirements of MISO states.
* Participating on continuum basis as an observer in the Eastern Interconnection Planning Collaborative (EIPC) study.

**AMEREN SERVICES**

St. Louis, Missouri
May 2000 – January 2006

Ameren Corporation is the parent of Union Electric Company (d/b/a AmerenUE), Central Illinois Public Service Company (d/b/a AmerenCIPS), Central Illinois Light Company (d/b/a AmerenCILCO), and Illinois Power Company (d/b/a AmerenIP). Ameren provide energy services to 2.3 million electric and 900,000 natural gas customers over 49,000 square miles in Illinois and Missouri. Ameren companies' net generation capacity is nearly 14,500 MW, which consist of nuclear, coal, gas, oil, and hydro generating facilities. Ameren's bulk power transmission system is comprised of a network of 345 kV, 230 kV, 115 kV, and 69 kV transmission lines interconnected through transformers to underlying lower voltage networks. This system is connected to neighboring systems through twenty-nine ties.

**Position Title:** Career Engineer (Transmission & Interconnection)

The responsibilities included

* Determine and coordinate the development of the Ameren transmission (bulk power supply) system with the surrounding area electric systems through engineering analysis.
* Perform transmission and interconnection studies, which include power flow, short circuit, stability, and economic analysis to maintain system reliability.
* Perform generation connection studies to evaluate its impact on the Ameren and surrounding systems.
* Perform and provide results of operating Studies to Energy Supply Operations.
* Perform power flow analysis using real time data from ESCA system.
* Review and provide comments related to MISO daily security analysis results.
* Advise Ameren's management on the optimum size, configuration, and timing of new transmission facilities based on engineering analysis and study results for inclusion in the Ameren construction budget.
* Provide expertise and participate in NERC/MAIN regional reliability activities.
* Review and provide expertise in FERC activities such as Order 2003 & Form 715 filing.
* Perform Field Checker duties related to storm outages.

**ISO NEW ENGLAND INC.**

Holyoke, Massachusetts
March 1999 – April 2000

The Independent System Operator (ISO) New England was created on July 1, 1997 by transferring staff and equipment from New England Power Pool (NEPOOL). ISO New England is formed to facilitate the restructuring of the nation's $200 billion electric industry. A not-for-profit, private corporation, ISO New England is responsible for operating New England's electric bulk power system and for administering the region's emerging restructured wholesale electricity marketplace. As of January 1, 1999, NEPOOL's Utility and Non-Utility generating capacity was 24,255 MW with a peak load of 19,920 MW. This capacity consists of nuclear, coal, gas, oil, hydro, and renewable (such as wood, wind, biomass, refuse, etc.) generating facilities. The New England bulk power transmission system is comprised of a network of 345 kV, 230 kV, 115 kV, and 69 kV transmission lines interconnected through transformers to underlying lower voltage networks. This system is connected to New York and the rest of the Eastern Interconnection through eight ties and interconnected with Hydro-Quebec through two HVDC facilities.

**Position Title:** Engineer (System Planning)

The responsibilities included

* Assist in the development of the 1999 NEPOOL Capacity, Energy, Loads and Transmission (CELT) Report and publish the *1999 NEPOOL CELT Summary Report.*
* Developed and analyzed the Electric Market Simulation System (EMSS) and PROSYM Production Simulation Model for NEPOOL Participants.
* Support the analysis for 1998 NEPOOL Marginal Emissions Analysis (MEA) and 1999 NEPOOL Generation Emissions Analysis (GEA) Reports using PROSYM.
* Support the development of the report entitled, *NEPOOL's Triennial Review of Resource Adequacy.*
* Support the development of the year 2000 CELT Report.
* Analysis of Summer 2000 Capacity situation for ISO New England region using Multi-Area Reliability Simulation (MARS).

**MISSOURI PUBLIC SERVICE COMMISSION**

Jefferson City, Missouri
August 1994 – February 1999

The Missouri Public Service Commission (PSC) was established in 1913 by the 47th General Assembly. The PSC is charged by statute with the responsibility of ensuring that public utility consumers receive safe, reliable, and reasonably priced utility services at rates which will provide the utility companies' shareholders the opportunity to earn a reasonable return on their investment. The PSC regulates rates, service and safety for Missouri investor-

owned electric, gas, telephone, heating, water and sewer companies. The regulated electric power utilities have a total installed capacity of 16,389 MW in 1996. This capacity consists of coal, gas, oil and nuclear generating facilities. These utilities have a substantial transmission network (69 kV - 345 kV) with multiple interconnections with neighboring utilities.

**Position Title:** Engineer IV (Electric Dept.)

The responsibilities included

* Review, analyze and maintain knowledge of utility companies' T & D facilities, operations, wheeling issues, transmission contracts and transmission constraints under various load flow conditions, market power issues regarding generation and transmission, power production maintenance planning, new construction and other power plant issues.
* Jurisdictional Allocation of electric utility plant, O&M costs and fuel costs. Filed testimonies in Empire District Electric Company's rate Case ER-97-81 and Missouri Public Service rate Case Nos. EO-97-144 & EC-97-362.
* Review and handle applications involving certificates of convenience and necessity, sale of facilities, territorial agreements and change of supplier. Filed testimony in AmerenUE and Gascosage Electric Cooperative Case No. EO-98-279.
* Respond and handle customer complaints and inquiries.
* Receive, review, maintain FERC notices (e.g. Order 888 & 889); as appropriate, advise others in Engineering.
* Data base development and maintenance.
* Investigate and prepare reports on incident and outages at utility power plants and other facilities.
* Review, analyze and make recommendations related to utility plant operating costs, plant operation procedure, plant efficiency test program procedures, utility construction costs and safety related items.
* Follow state and national issues that may lead to change or affect the utility industry including electric restructuring issues.
* I have demonstrated in explaining and implementing policy related to new transmission line siting by participating in the open house with a diverse audience. I have participated as a team member in preparing a state-wide safety program (with requirements and measurements) related to electricity and conveyed this program to electric utility companies.

**CARTOTECH, INC.**

San Antonio, Texas
June 1993 - July 1994

Cartotech is a Texas-based, privately held corporation that provides AM/FM/GIS database construction, maintenance, custom cartography, and map drafting services for the North American Utility and the municipal government industries.

**Position Title:** Electrical Engineer

PROJECTS: TU Electric, South Carolina Electric & Gas

The responsibilities included

* Project implementation design of specific technical methodologies and processes.
* Data Conversion and software testing.
* Design of data collection and analysis procedures.
* Quality control for the field inventory of both the underground and overhead primary electric distribution system.

**DEPARTMENT OF ELECTRICAL ENGINEERING**

University of Saskatchewan
Saskatoon, Saskatchewan
May 1991 - December 1992

**Position Title:** Research/Teaching Assistant

The responsibilities included

* Developed a probabilistic technique called the "Expected Energy Assistance" to assess spinning reserve requirements in interconnected generation systems. The technique along with the effect of generating unit sizes, tie-line capacity and lead-time are illustrated.
* Tutoring of undergraduate electrical engineering students.
* Supervised computer labs.
* Actively involved in research, writing technical papers, and presenting research findings to undergraduate and graduate students and professors.

**INVENTRONICS LTD.**

Edmonton, Alberta
November 1989 - August 1990

Inventronics is a manufacturing company the main client for the company is Alberta Government Telephones (AGT).

**Position Title:** Engineering Tech.

The responsibilities included

* The designing of A.C./D.C. Shelves for AGT.
* The testing of electrical control panels.

**KARACHI ELECTRIC SUPPLY CORPORATION**

Karachi, Pakistan
December 1984 - May 1989

Karachi Electric Supply Corporation (KESC) is a privately held electric power utility company, which is responsible for the generation, transmission, and distribution of electricity to the city of Karachi and subsidiary industrial areas. KESC had a total installed capacity of 1040 MW in 1989. This capacity consists of coal, gas, oil and nuclear generating facilities. The transmission system consists of 220 kV, 132 kV and 66 kV transmission lines.

**Position Title:** Electrical Engineer

The responsibilities included

* Planning, organizing, directing, and coordinating transmission and distribution system operation and control.
* Maintenance of switchgear, transformer, and protective relays.
* Cost estimation, load forecasting studies, and export\import with other utilities.
* Supervised and participated in the design of additions or changes to power system.
* Participated in the operating policy development for the field crew related to switching operations. Presented those policies for the implementation to fellow engineers, management and field crew.

**STEEL MILLS**

Karachi, Pakistan
September 1983 - November 1984

Steel Mills is a heavy industry, which produce steel and its bi-products. It has self-generation of 50 MW.

**Position Title:** Electrical Engineer

The responsibilities included

* Preparation of equipment specifications, bid evaluations and its approval.
* On site inspection/testing for the operation or functioning of electric materials and equipment to ensure that the best possible product is use in the steel mills.

* Preparation and administration of electric engineering section budget, comprehend, evaluate, and interferences from the written materials.

**ACHIEVEMENTS AND CONTINUING EDUCATION:**

* Actively participate in the IEEE Power Electronics and Power Engineering societies.
* Volunteer as a judge for the "Baltimore Catholic Forensic League Debate", judge for the IEEE "The Robot Challenge", and judge for Maryland Science Olympiad events.
* Volunteered as a key worker for the 2010 Combined Federal Campaign (CFC) at FERC and was able to achieve 100% participation from Division of Bulk Power System Analysis.
* Volunteering as a FERC recruiter team.
* Mentor FERC staff and summer intern.
* Completed an on-line course on "Professional Ethics and Globalization, William A. (Bill) Brant, J.D., P.E" February 20, 2019.
* Attended IEEE workshop on "Global Cybersecurity Trends and Practices, Dr. Terry Thompson" held on January 20, 2018.
* Attended workshop on "NERC Inverter-based Resource (IBR) Performance and Analysis" held on February 12-13, 2019.
* Participated in the IEEE Webinar on "Introduction to Leadership" Presented by Elya Joffe of IEEE past president, held on August 26, 2010.
* Participated in the IEEE Webinar on "Dealing with Conflict Part 1 and 2" Presented by Alice Fuscaldo of IEEE Staff Learning Center, held on March 17 and April 20, 2010.
* Participated in the Production Costing Software tool "PROMOD" training held on February 22-26, 2010, at the FERC office.
* Attended the "Business and Technical Writing" training conducted by The Murawski Group at FERC, on April 28-29, 2009.
* Participated in the IEEE Section Group Leadership Workshop 2008, held on March 8, 2008, in McLean, VA.
* Volunteered as a judge for the "National Forensic League (NFL) 56$^{th}$ Grand National Tournament" held on June 26-27, 2007, in Wichita, Kansas.
* Volunteered as a judge for the "National Catholic Forensic League (NCFL) 56$^{th}$ Grand National Tournament" held on May 26-27, 2007, in Houston, Texas.
* Volunteered as a judge for the "National Forensic League Debate" held on March 15, 2008, and March 31, 2007, in Towson, Maryland.
* Volunteered as a judge for the "Baltimore Catholic Forensic League Debate" held on February 12, 2007, in Columbia, Maryland.
* Received Quality Service Awards from the Divisional Director at FERC for "Providing Technical Support on the Staff Preliminary Assessment of NERC Proposed Mandatory Reliability Standards and Staff Training on MUST Software".
* Received training on "Transmission Dispatcher - WPA".
* Attended the GE presentation on "Use of Variable Frequency Transformer (VFT) technology" held on December 12, 2006, at FERC office.
* Attended the "PowerWorld Retriever Application for Visualization of Power System" presented by PowerWorld Corporation on November 2, 2005, in St. Louis, Missouri.
* Participated in the "MISO Fall Power System Restoration Drill" held on October 11, 12, and 26, 2005 in St. Louis, Missouri.
* Volunteered for the "Ameren Safety Fair" held on October 8, 2005, in St. Louis, Missouri.
* Attended the "DVAR and SVC Applications seminar" presented by American Superconducting and ABB in St. Louis, Missouri.
* Attended the "Take Charge: Energizing Your Career" workshop conducted by Ameren, on July 29-30, 2004, in St. Louis, Missouri.
* Attended the "Lightning & Overhead Distribution Lines" seminar for professional development hours (PDH) conducted by Ameren, on March 17, 2004, in St. Louis, Missouri.

* Attended the "Thermal Rating Project" seminar conducted by GridAmerica, on February 6, 2004, in St. Louis, Missouri.
* Attended the "7 Habits of Highly Effective People" training conducted by Organization Effective Group of Human Resources, on June 3rd through June 5th, 2003, in St. Louis, Missouri.
* Attended the "Effective Oral Presentations" training conducted by Organization Effective Group of Human Resources, on May 8, 2003, in St. Louis, Missouri.
* I was a member of MAIN "Transmission Assessment Study Group (TASG)".
* Completed a course on "Reading T&D Schematic" Offered by Dorsett Training Center, during May through September 2002, in St. Louis, Missouri.
* Attended the "Underground Transmission Circuit Design Seminar" conducted by Power Engineers Inc., on March 14, 2002, in St. Louis, Missouri.
* Attended the "2002 NERC/MAIN Regional Compliance Program Seminar" conducted by MAIN on February 20, 2002, in St. Louis, Missouri.
* Attended the "2001 NERC/MAIN Regional Compliance Program Seminar" conducted by MAIN on February 15, 2001, in St. Louis, Missouri.
* Attended the "Transmission Line Rating Seminar" conducted by The Valley Group, Inc., on February 14, 2001, in Bloomington, Illinois.
* Attended the "Managing and Utilizing System Transmission (MUST)" training conducted by Power Technologies, Inc., on March 8-10, 2000, in Holyoke, Massachusetts.
* I was an Assistant Secretary for "the NEPOOL Power Supply Planning Committee".
* Attended the "Advanced Regional Modeling Course" conducted by Henwood Energy Services Inc., on October 11-14, 1999, in Sacramento, California.
* Attended the "Basic PROSYM Course" conducted by Henwood Energy Services Inc., on June 15-18, 1999, in Atlanta, Georgia.
* Published the 1999 NEPOOL Summary Report of Capacity, Energy, Loads and Transmission (CELT).
* Participated in the "1998 Power Quality Interconnection Workshop" conducted by U. S. Fuel Cell Council, on October 16, 1998, in St. Louis, Missouri.
* Attended the "Managing Risks Workshop" conducted by State Information Technology Consortium, on October 5-6, 1998, in Jefferson City, Missouri.
* Filed **testimony** in the St. Joseph Light & Power Company Case No. EC-98-573 on the issue of System Energy Losses.
* Attended the "Power System Stability, Analysis and Control" course conducted by EPRI and Powertech Labs Inc., on September 28 thru October 1, 1998 in Atlanta, Georgia.
* Filed **testimony** in the AmerenUE and Gascosage Electric Cooperative Case No. EO-98-279 on the issue of Territorial Agreement.
* Submitted **testimony** in the Missouri Public Service Case Nos. EO-97-144 and EC-97-362 on the issue of jurisdictional allocation of generation & transmission (G&T) facilities.
* In Empire District Electric Company's rate Case ER-97-81, I have presented a **testimony** on the issues of jurisdictional allocation of G&T facilities, cost of distribution plant, cost of fuel inventory, and system energy losses.
* Attended the "Tariff Implementation Workshop" conducted by Southwest Power Pool on April 13-14, 1998 in Kansas City, Missouri.
* Attended the "Transmission Reliability Margin and Capacity Benefit Margin and their Relationship to ATC" symposium conducted by NERC on January 14-15, 1998 in Orlando, Florida.
* Attended the sexual harassment program entitled "Sex, Lies and Work: A Touchy Dilemma".
* Attended the "Available Transfer Capability (ATC) Evaluation" seminar conducted by EPRI on November 21-22, 1996 in Columbus, Ohio.
* Attended the "Power Flow Modeling Symposium" arranged by NERC on August 22-23, 1996 in Dallas, Texas.
* Attended the "Rate and Regulatory Symposium" in Kansas City, Missouri from May 5-7, 1996. The symposium addresses the issues related to the regulatory problems of public utilities under changing economic and social conditions; and the pricing and regulation of electric services.

* Attended the "Modern Energy Management Systems" course at Georgia Tech. in Atlanta, Georgia from November 14-17, 1995. Learned about the SCADA Systems, Automatic Generation Control, Economic Operation and Network Security.
* Total Quality Management training.
* Attended the conference on "Transmission Access, Wheeling and Deregulation of America's Utilities" in Arlington, Virginia on May 15-17, 1995. The conference addressed the issues related to the Transmission open access and restructuring of electric industry.
* Attended the conference on "Dawn of the Power Marketer" in Las Vegas, Nevada from October 20-21, 1994. Learned about the FERC activities and its requirements for open transmission access, wheeling and regional transmission groups.
* Presented a paper on "An Energy Based Approach for Spinning Reserve Assessment in Interconnected Generation Systems" in the CEA Electricity 1993 conference.
* Presented a paper on "Economic Operation of Power Systems" in the graduate seminar.
* Recipient of a Gold Medal in undergraduate research project.
* Volunteer for the "Information Technology Group" and "New Employee Welcome Committee" at the Missouri Public Service Commission.
* Sports Coordinator for the Engineering Graduate Course Council at the University of Saskatchewan.

**PERSONAL DATA:**
US Citizen
Willing to travel

**REFERENCES:**
Available upon request

CR150-2020

**EDUCATION:**

* Master of Electrical Engineering, the University of Saskatchewan (1993), Canada
  Thesis: Probabilistic Assessment of Spinning Reserve in Interconnected Generation System
* Bachelor of Electrical Engineering, NED University (1983)

**PROFESSIONAL REGISTRATION:**

* Professional Engineer (PE), Maryland and Missouri
* Senior Member IEEE

**COMMITTEE PARTICIPATION:**

ERAG MMWG: Actively participating in the Multiregional Modeling Working Group.
NERC SDT: Participating as team member in the Standard Drafting Teams.
NERC MVTF: Participating in the NERC Model Validation Task Force.
MISO/PJM/SPP TEP: Actively participating in the Transmission Expansion Planning Group
Chair IEEE Power Electronics Society.
IEEE: Volunteer judge for IEEE Robot Challenge.
FIRST Tech Challenge (FTC): Volunteer judge.
Baltimore Catholic Forensic League Debate: Volunteer judge.

**COMPUTER SKILLS:**

| | |
|---|---|
| Systems: | VAX/VMS, Windows 95, Windows NT, Windows XP, Windows Vista, Windows 2010, Apple Macintosh and IBM PC |
| Packages: | AutoCAD, Intergraph, Microsoft Word, WordPerfect, Microsoft Excel, Microsoft Access, Lotus 1-2-3, dBase IV, PROSYM, EMSS, GE-MARS, GE-PSLF, Siemens-PTI PSS/E, Siemens-PTI MUST, Siemens-PTI ODMS, Siemens-PTI MODWeb, Powerworld, Visio 5.0, Energy Velocity Suite, PROMOD, AEMPFAST |
| Languages: | FORTRAN 77, Qbasic |

**EXPERIENCE:**

**FERC (Federal Energy Regulatory Commission)**

Washington, DC
January 2006 – Present

The Federal Energy Regulatory Commission, or FERC, is an independent agency that regulates the interstate transmission of natural gas, oil, and electricity. FERC also regulates natural gas and hydropower projects. By enacting the Energy Policy Act of 2005, Congress entrusted the Commission with the duties of approving and enforcing rules to ensure the reliability of the Nation's Bulk-Power System and certifying an ERO that would be charged with developing and enforcing mandatory Reliability Standards, subject to Commission approval. Section 215(b)(1) of the FPA states that all users, owners, and operators of the Bulk-Power System in the United States will be subject to Commission-approved Reliability Standards.

**Position Title:** Electrical Engineer (Office of Electric Reliability - Division of Reliability Standards and Security/Division of Operation and Planning Standards) – March 2012 - Present

The responsibilities included

* Leading filings/projects for Reliability Standards: **Filings** - RM16-20-000 Remedial Action Scheme (RAS) Reliability Standard PRC-012-2, RM16-13 Approval of proposed Reliability Standards BAL-005-1 and FAC-001-3 and retirement of BAL-006-2, RM16-7 Reliability Standard BAL-002-2 (Disturbance Control Standard), RD17-1 Time Error Correction (BAL-004-0) Reliability Standard, RD18-6 Errata to Implementation Plan for the Revised Definition of Remedial Action Scheme under Docket No. RM15-13,

RD20-9 Reliability Standard BAL-003-2, RD20-6 Reliability Standard PRC-024-3 Frequency and Voltage Protection Settings for Generating Resources. **Projects** – Phase II of Project 2017-01 Modifications to Reliability Standard BAL-003-1.1 (Frequency Response and Frequency Bias Setting) and Project 2020-01 Modifications to MOD-032 (Data for Power System Modeling and Analysis).

* Back-up for Reliability Standards: **Filings** - RM16-22-000 Coordination of Protection Systems for Performance During Faults (PRC-027-1) and Specific Training for Personnel (PER-006-1), RD18-1 - Seeking approval to retire the WECC regional Reliability Standard VAR-002-WECC-2, RD18-2 - Seeking approval of proposed regional Reliability Standard BAL-004-WECC-3, RD18-3 - Seeking approval to retire the WECC regional Reliability Standard PRC-004-WECC-2. **Projects** – Standards Efficiency Review (SER), Microgrid Resiliency – A study that will look into resiliency of microgrid, and Lawrence Berkeley National Laboratory (LBNL) Study - Effect of Generation Fleet Composition on Grid Frequency Dip.
* Provided subject matter expertise on RM13-11(Frequency Response BAL-003-1), RD13-12 (Primary Frequency Response BAL-001-TRE-01), Project 2010-14.1 BARC - Reserves (BAL-001-2 and BAL-002-2), and Project 2006-02 Transmission Planning (RM12-1, footnote b) and Project 2010-11 Transmission Planning (RM13-9 TPL-001-4).
* **Audits** - Performed observation audit for Empire District Electric; Currently performing FERC lead RC audit for CAISO.
* Writing skills: filing summaries, Reliability Working Group (RWG) memos, Notice of Proposed Rulemaking (NOPRs), Final Rule, Commission Letter Order (CLO), and Delegations Letter Order (DLO).
* Communication skills: communicates clearly, competently, and precisely on diverse issues and questions. For example, as a team lead or team member monitoring the development of various Reliability Standards, expressed the staff's concerns and how to meet the Commission directives to standard drafting team.

**Position Title:** Electrical Engineer (Office of Electric Reliability - Division of Engineering, Planning, and Operation) – September 2007 – March 2012

The responsibilities included

* Evaluation of Topological and Impedance Element Ranking (TIER) Report and its effect on Grid - I lead the team in the analysis of identified TIER ranking by simulating contingencies and getting the reasonable solution on area(s) impacted. Guided other team member in simulation and analysis efforts. I used my modeling skills to contribute that project be developed on time and at the high-quality level.
* Order 1000 (Transmission Planning and Cost Allocation) – As a team member provided information on treatment of merchant transmission facilities in the regional plan and requirement of merchant transmission owner to meet regional reliability and operational efficiency under FERC order for negotiated rates. Reviewed the Interregional Coordination section and provided comments to team members. Provided to the team about ISO/RTO transmission project selection criteria to include in their expansion plan and powerflow models.
* Evaluated the Advanced Energy Management Power Flow Analysis System Technology (AEMPFAST/GRIDfast) software for load flow and optimization features.
* Actively involved as a team member in the Lawrence Berkley National Lab's Frequency Response Study, provided support related to ERCOT and Eastern Interconnection modeling issues.
* Performed load flow analyses in response to DOJ Inquiry on the Reliability Implication of Shutting down Gallagher Units 1 and 3 (Totaling 280 MW), Wabash River Units 2, 3, & 5 (Totaling 283 MW), and on the temporary shut down of Monroe Unit 2 (785 MW).
* Potential Retirement of Coal Fired Generation and its Effect on System Reliability – Performed steady-state reliability analysis for system as it is and system with retired coal generation.
* Reviewed and prepared a metrics for large utility companies FERC Form 715 filed planning criteria and guidelines for information and discussion purposes. Involved in training Staff engineers about filed 714/715 data verification and utilization using power flow software.
* Actively involved in NERC Reliability Standards petition, leading role in writing two chapters related to Facility (FAC) and Protection (PRC) for Staff Assessment Report and NOPR, reviewed comments

submitted under Staff Assessment Report, provided technical support for MOD and INT chapters for the final NOPR (RM06-16).

* Reviewed and analyzed events reported via OE-417 and ES-ISAC e-mails, participated in the NERC-FERC bi-weekly conference call related to event analysis discussions. Performed voltage analysis for Con Edison system regarding an incident occurred on June 27th, 2007, which resulted in shutdown of Astoria West, Bruckner and Hell Gate substations.
* Provided technical support to tariff group on the Order 890 Attachment K (Transmission Planning Process) white paper and Order 890 rehearing issues.
* After reviewing the Large Generator Interconnection Procedures (LGIP) compliance fillings for different regions prepared a metrics indicating regional practices to perform studies and who else is participating in the study process. As a team member, provided technical assistance on CAISO LGIP (ER04-445), and MISO LGIP.
* Provided technical support to tariff group on the MISO Contingency Reserve Sharing Group case (ER06-1420 & ER08-1055), MISO Ancillary Service Market case (ER07-1372) and MISO Resource Adequacy case (ER08-398).
* Provided technical support to tariff group on the PJM Reliability Pricing Model (forward capacity market) case (ER05-1410).
* Performed NERC Reliability Readiness Evaluation/Audit related to Balancing Authority, Transmission Operator, Transmission Owner, and Reliability Coordinator as a part of audit team (those entities were MGE, SPP ICT, TVA, AEP, PacifiCorp, RDRC, SPP, LADWP, PEPCO).
* Providing technical assistance to the Staff of Tariff Group on cases related to generation interconnection (Order 2003-LGIP), generation interconnection queue process (AD08-2), transmission rate incentive (Order 679/679-A), Long-term Transmission Rights (Order 681/681-A), transmission cost allocation, TLR issues, ATC, PJM Simultaneous Import Limit analyses (using PSS/E and MUST software), revenue sufficiency guarantee and reliability assessment commitment for MISO.
* Provided technical assistance to the Staff of Office of Enforcement (OE) related to ATC and System Impact Study complaint by reviewing the study and data submitted.
* Backstop Siting – Worked on the Southern California Edison's proposed Dever-Palo Verde-2 500 kV transmission line backstop filing (PT08-1).
* Reviewed and analyzed PJM Regional Transmission Expansion Plan (RTEP) projects such as TrAIL (502 Junction-Mt. Storm-Meadow Brook-Loudon 500 kV line), PATH (Amos- Welton Spring-Kemptown 765 kV line), and MAPP (Possum Point-Calvert Cliffs-Indian River-Salem 500 kV line), in perspective of need for the projects, alternatives considered, status of projects, contingency plans, permitting and back-stop siting issues.
* Interact with other federal agencies such as DOE and OPM and NERC related to EIA-411 and EIA-860 data collection coordination on as need basis.
* Providing technical training related to power flow software to Engineering, Planning and Operation Groups on as need basis.
* Actively participated in the MISO Regional Generation Outlet Study (RGOS) studies to determine system needs along with integration of wind generation to meet renewable portfolio standard requirements of MISO states.
* Participating on continuum basis as an observer in the Eastern Interconnection Planning Collaborative (EIPC) study.

**AMEREN SERVICES**

St. Louis, Missouri
May 2000 – January 2006

Ameren Corporation is the parent of Union Electric Company (d/b/a AmerenUE), Central Illinois Public Service Company (d/b/a AmerenCIPS), Central Illinois Light Company (d/b/a AmerenCILCO), and Illinois Power Company (d/b/a AmerenIP). Ameren provide energy services to 2.3 million electric and 900,000 natural gas customers over 49,000 square miles in Illinois and Missouri. Ameren companies' net generation capacity is nearly 14,500 MW, which consist of nuclear, coal, gas, oil, and hydro generating facilities. Ameren's bulk power transmission system is comprised of a network of 345 kV, 230 kV, 115 kV, and 69 kV transmission lines

interconnected through transformers to underlying lower voltage networks. This system is connected to neighboring systems through twenty-nine ties.

**Position Title:** Career Engineer (Transmission & Interconnection)

The responsibilities included

* Determine and coordinate the development of the Ameren transmission (bulk power supply) system with the surrounding area electric systems through engineering analysis.
* Perform transmission and interconnection studies, which include power flow, short circuit, stability, and economic analysis to maintain system reliability.
* Perform generation connection studies to evaluate its impact on the Ameren and surrounding systems.
* Perform and provide results of operating Studies to Energy Supply Operations.
* Perform power flow analysis using real time data from ESCA system.
* Review and provide comments related to MISO daily security analysis results.
* Advise Ameren's management on the optimum size, configuration, and timing of new transmission facilities based on engineering analysis and study results for inclusion in the Ameren construction budget.
* Provide expertise and participate in NERC/MAIN regional reliability activities.
* Review and provide expertise in FERC activities such as Order 2003 & Form 715 filing.
* Perform Field Checker duties related to storm outages.

**ISO NEW ENGLAND INC.**

Holyoke, Massachusetts
March 1999 – April 2000

The Independent System Operator (ISO) New England was created on July 1, 1997 by transferring staff and equipment from New England Power Pool (NEPOOL). ISO New England is formed to facilitate the restructuring of the nation's $200 billion electric industry. A not-for-profit, private corporation, ISO New England is responsible for operating New England's electric bulk power system and for administering the region's emerging restructured wholesale electricity marketplace. As of January 1, 1999, NEPOOL's Utility and Non-Utility generating capacity was 24,255 MW with a peak load of 19,920 MW. This capacity consists of nuclear, coal, gas, oil, hydro, and renewable (such as wood, wind, biomass, refuse, etc.) generating facilities. The New England bulk power transmission system is comprised of a network of 345 kV, 230 kV, 115 kV, and 69 kV transmission lines interconnected through transformers to underlying lower voltage networks. This system is connected to New York and the rest of the Eastern Interconnection through eight ties and interconnected with Hydro-Quebec through two HVDC facilities.

**Position Title:** Engineer (System Planning)

The responsibilities included

* Assist in the development of the 1999 NEPOOL Capacity, Energy, Loads and Transmission (CELT) Report and publish the *1999 NEPOOL CELT Summary Report.*
* Developed and analyzed the Electric Market Simulation System (EMSS) and PROSYM Production Simulation Model for NEPOOL Participants.
* Support the analysis for 1998 NEPOOL Marginal Emissions Analysis (MEA) and 1999 NEPOOL Generation Emissions Analysis (GEA) Reports using PROSYM.
* Support the development of the report entitled, *NEPOOL's Triennial Review of Resource Adequacy.*
* Support the development of the year 2000 CELT Report.
* Analysis of Summer 2000 Capacity situation for ISO New England region using Multi-Area Reliability Simulation (MARS).

**MISSOURI PUBLIC SERVICE COMMISSION**

Jefferson City, Missouri
August 1994 – February 1999

The Missouri Public Service Commission (PSC) was established in 1913 by the 47th General Assembly. The PSC is charged by statute with the responsibility of ensuring that public utility consumers receive safe, reliable, and reasonably priced utility services at rates which will provide the utility companies' shareholders the opportunity to earn a reasonable return on their investment. The PSC regulates rates, service and safety for Missouri investor-owned electric, gas, telephone, heating, water and sewer companies. The regulated electric power utilities have a total installed capacity of 16,389 MW in 1996. This capacity consists of coal, gas, oil and nuclear generating facilities. These utilities have a substantial transmission network (69 kV - 345 kV) with multiple interconnections with neighboring utilities.

**Position Title:** Engineer IV (Electric Dept.)

The responsibilities included

* Review, analyze and maintain knowledge of utility companies' T & D facilities, operations, wheeling issues, transmission contracts and transmission constraints under various load flow conditions, market power issues regarding generation and transmission, power production maintenance planning, new construction and other power plant issues.
* Jurisdictional Allocation of electric utility plant, O&M costs and fuel costs. Filed testimonies in Empire District Electric Company's rate Case ER-97-81 and Missouri Public Service rate Case Nos. EO-97-144 & EC-97-362.
* Review and handle applications involving certificates of convenience and necessity, sale of facilities, territorial agreements and change of supplier. Filed testimony in AmerenUE and Gascosage Electric Cooperative Case No. EO-98-279.
* Respond and handle customer complaints and inquiries.
* Receive, review, maintain FERC notices (e.g. Order 888 & 889); as appropriate, advise others in Engineering.
* Data base development and maintenance.
* Investigate and prepare reports on incident and outages at utility power plants and other facilities.
* Review, analyze and make recommendations related to utility plant operating costs, plant operation procedure, plant efficiency test program procedures, utility construction costs and safety related items.
* Follow state and national issues that may lead to change or affect the utility industry including electric restructuring issues.
* I have demonstrated in explaining and implementing policy related to new transmission line siting by participating in the open house with a diverse audience. I have participated as a team member in preparing a state-wide safety program (with requirements and measurements) related to electricity and conveyed this program to electric utility companies.

**CARTOTECH, INC.**

San Antonio, Texas
June 1993 - July 1994

Cartotech is a Texas-based, privately held corporation that provides AM/FM/GIS database construction, maintenance, custom cartography, and map drafting services for the North American Utility and the municipal government industries.

**Position Title:** Electrical Engineer

PROJECTS: TU Electric, South Carolina Electric & Gas

The responsibilities included

* Project implementation design of specific technical methodologies and processes.
* Data Conversion and software testing.
* Design of data collection and analysis procedures.
* Quality control for the field inventory of both the underground and overhead primary electric distribution system.

**DEPARTMENT OF ELECTRICAL ENGINEERING**

University of Saskatchewan
Saskatoon, Saskatchewan
May 1991 - December 1992

**Position Title:** Research/Teaching Assistant

The responsibilities included

* Developed a probabilistic technique called the "Expected Energy Assistance" to assess spinning reserve requirements in interconnected generation systems. The technique along with the effect of generating unit sizes, tie-line capacity and lead-time are illustrated.
* Tutoring of undergraduate electrical engineering students.
* Supervised computer labs.
* Actively involved in research, writing technical papers, and presenting research findings to undergraduate and graduate students and professors.

**INVENTRONICS LTD.**

Edmonton, Alberta
November 1989 - August 1990

Inventronics is a manufacturing company the main client for the company is Alberta Government Telephones (AGT).

**Position Title:** Engineering Tech.

The responsibilities included

* The designing of A.C./D.C. Shelves for AGT.
* The testing of electrical control panels.

**KARACHI ELECTRIC SUPPLY CORPORATION**

Karachi, Pakistan
December 1984 - May 1989

Karachi Electric Supply Corporation (KESC) is a privately held electric power utility company, which is responsible for the generation, transmission, and distribution of electricity to the city of Karachi and subsidiary industrial areas. KESC had a total installed capacity of 1040 MW in 1989. This capacity consists of coal, gas, oil and nuclear generating facilities. The transmission system consists of 220 kV, 132 kV and 66 kV transmission lines.

**Position Title:** Electrical Engineer

The responsibilities included

* Planning, organizing, directing, and coordinating transmission and distribution system operation and control.
* Maintenance of switchgear, transformer, and protective relays.
* Cost estimation, load forecasting studies, and export\import with other utilities.
* Supervised and participated in the design of additions or changes to power system.
* Participated in the operating policy development for the field crew related to switching operations. Presented those policies for the implementation to fellow engineers, management and field crew.

**STEEL MILLS**

Karachi, Pakistan
September 1983 - November 1984

Steel Mills is a heavy industry, which produce steel and its bi-products. It has self-generation of 50 MW.

**Position Title:** Electrical Engineer

The responsibilities included

* Preparation of equipment specifications, bid evaluations and its approval.
* On site inspection/testing for the operation or functioning of electric materials and equipment to ensure that the best possible product is use in the steel mills.
* Preparation and administration of electric engineering section budget, comprehend, evaluate, and interferences from the written materials.

**ACHIEVEMENTS AND CONTINUING EDUCATION:**

* Actively participate in the IEEE Power Electronics and Power Engineering societies.
* Volunteer as a judge for the "Baltimore Catholic Forensic League Debate", judge for the IEEE "The Robot Challenge", and judge for Maryland Science Olympiad events.
* Volunteered as a key worker for the 2010 Combined Federal Campaign (CFC) at FERC and was able to achieve 100% participation from Division of Bulk Power System Analysis.
* Volunteering as a FERC recruiter team.
* Mentor FERC staff and summer intern.
* Completed an on-line course on "Professional Ethics and Globalization, William A. (Bill) Brant, J.D., P.E" February 20, 2019.
* Attended IEEE workshop on "Global Cybersecurity Trends and Practices, Dr. Terry Thompson" held on January 20, 2018.
* Attended workshop on "NERC Inverter-based Resource (IBR) Performance and Analysis" held on February 12-13, 2019.
* Participated in the IEEE Webinar on "Introduction to Leadership" Presented by Elya Joffe of IEEE past president, held on August 26, 2010.
* Participated in the IEEE Webinar on "Dealing with Conflict Part 1 and 2" Presented by Alice Fuscaldo of IEEE Staff Learning Center, held on March 17 and April 20, 2010.
* Participated in the Production Costing Software tool "PROMOD" training held on February 22-26, 2010, at the FERC office.
* Attended the "Business and Technical Writing" training conducted by The Murawski Group at FERC, on April 28-29, 2009.
* Participated in the IEEE Section Group Leadership Workshop 2008, held on March 8, 2008, in McLean, VA.
* Volunteered as a judge for the "National Forensic League (NFL) 56th Grand National Tournament" held on June 26-27, 2007, in Wichita, Kansas.
* Volunteered as a judge for the "National Catholic Forensic League (NCFL) 56th Grand National Tournament" held on May 26-27, 2007, in Houston, Texas.
* Volunteered as a judge for the "National Forensic League Debate" held on March 15, 2008, and March 31, 2007, in Towson, Maryland.
* Volunteered as a judge for the "Baltimore Catholic Forensic League Debate" held on February 12, 2007, in Columbia, Maryland.
* Received Quality Service Awards from the Divisional Director at FERC for "Providing Technical Support on the Staff Preliminary Assessment of NERC Proposed Mandatory Reliability Standards and Staff Training on MUST Software".
* Received training on "Transmission Dispatcher - WPA".
* Attended the GE presentation on "Use of Variable Frequency Transformer (VFT) technology" held on December 12, 2006, at FERC office.
* Attended the "PowerWorld Retriever Application for Visualization of Power System" presented by PowerWorld Corporation on November 2, 2005, in St. Louis, Missouri.
* Participated in the "MISO Fall Power System Restoration Drill" held on October 11, 12, and 26, 2005 in St. Louis, Missouri.
* Volunteered for the "Ameren Safety Fair" held on October 8, 2005, in St. Louis, Missouri.

* Attended the "DVAR and SVC Applications seminar" presented by American Superconducting and ABB in St. Louis, Missouri.
* Attended the "Take Charge: Energizing Your Career" workshop conducted by Ameren, on July 29-30, 2004, in St. Louis, Missouri.
* Attended the "Lightning & Overhead Distribution Lines" seminar for professional development hours (PDH) conducted by Ameren, on March 17, 2004, in St. Louis, Missouri.
* Attended the "Thermal Rating Project" seminar conducted by GridAmerica, on February 6, 2004, in St. Louis, Missouri.
* Attended the "7 Habits of Highly Effective People" training conducted by Organization Effective Group of Human Resources, on June 3rd through June 5th, 2003, in St. Louis, Missouri.
* Attended the "Effective Oral Presentations" training conducted by Organization Effective Group of Human Resources, on May 8, 2003, in St. Louis, Missouri.
* I was a member of MAIN "Transmission Assessment Study Group (TASG)".
* Completed a course on "Reading T&D Schematic" Offered by Dorsett Training Center, during May through September 2002, in St. Louis, Missouri.
* Attended the "Underground Transmission Circuit Design Seminar" conducted by Power Engineers Inc., on March 14, 2002, in St. Louis, Missouri.
* Attended the "2002 NERC/MAIN Regional Compliance Program Seminar" conducted by MAIN on February 20, 2002, in St. Louis, Missouri.
* Attended the "2001 NERC/MAIN Regional Compliance Program Seminar" conducted by MAIN on February 15, 2001, in St. Louis, Missouri.
* Attended the "Transmission Line Rating Seminar" conducted by The Valley Group, Inc., on February 14, 2001, in Bloomington, Illinois.
* Attended the "Managing and Utilizing System Transmission (MUST)" training conducted by Power Technologies, Inc., on March 8-10, 2000, in Holyoke, Massachusetts.
* I was an Assistant Secretary for "the NEPOOL Power Supply Planning Committee".
* Attended the "Advanced Regional Modeling Course" conducted by Henwood Energy Services Inc., on October 11-14, 1999, in Sacramento, California.
* Attended the "Basic PROSYM Course" conducted by Henwood Energy Services Inc., on June 15-18, 1999, in Atlanta, Georgia.
* Published the 1999 NEPOOL Summary Report of Capacity, Energy, Loads and Transmission (CELT).
* Participated in the "1998 Power Quality Interconnection Workshop" conducted by U. S. Fuel Cell Council, on October 16, 1998, in St. Louis, Missouri.
* Attended the "Managing Risks Workshop" conducted by State Information Technology Consortium, on October 5-6, 1998, in Jefferson City, Missouri.
* Filed **testimony** in the St. Joseph Light & Power Company Case No. EC-98-573 on the issue of System Energy Losses.
* Attended the "Power System Stability, Analysis and Control" course conducted by EPRI and Powertech Labs Inc., on September 28 thru October 1, 1998 in Atlanta, Georgia.
* Filed **testimony** in the AmerenUE and Gascosage Electric Cooperative Case No. EO-98-279 on the issue of Territorial Agreement.
* Submitted **testimony** in the Missouri Public Service Case Nos. EO-97-144 and EC-97-362 on the issue of jurisdictional allocation of generation & transmission (G&T) facilities.
* In Empire District Electric Company's rate Case ER-97-81, I have presented a **testimony** on the issues of jurisdictional allocation of G&T facilities, cost of distribution plant, cost of fuel inventory, and system energy losses.
* Attended the "Tariff Implementation Workshop" conducted by Southwest Power Pool on April 13-14, 1998 in Kansas City, Missouri.
* Attended the "Transmission Reliability Margin and Capacity Benefit Margin and their Relationship to ATC" symposium conducted by NERC on January 14-15, 1998 in Orlando, Florida.
* Attended the sexual harassment program entitled "Sex, Lies and Work: A Touchy Dilemma".
* Attended the "Available Transfer Capability (ATC) Evaluation" seminar conducted by EPRI on November 21-22, 1996 in Columbus, Ohio.

* Attended the "Power Flow Modeling Symposium" arranged by NERC on August 22-23, 1996 in Dallas, Texas.
* Attended the "Rate and Regulatory Symposium" in Kansas City, Missouri from May 5-7, 1996. The symposium addresses the issues related to the regulatory problems of public utilities under changing economic and social conditions; and the pricing and regulation of electric services.
* Attended the "Modern Energy Management Systems" course at Georgia Tech. in Atlanta, Georgia from November 14-17, 1995. Learned about the SCADA Systems, Automatic Generation Control, Economic Operation and Network Security.
* Total Quality Management training.
* Attended the conference on "Transmission Access, Wheeling and Deregulation of America's Utilities" in Arlington, Virginia on May 15-17, 1995. The conference addressed the issues related to the Transmission open access and restructuring of electric industry.
* Attended the conference on "Dawn of the Power Marketer" in Las Vegas, Nevada from October 20-21, 1994. Learned about the FERC activities and its requirements for open transmission access, wheeling and regional transmission groups.
* Presented a paper on "An Energy Based Approach for Spinning Reserve Assessment in Interconnected Generation Systems" in the CEA Electricity 1993 conference.
* Presented a paper on "Economic Operation of Power Systems" in the graduate seminar.
* Recipient of a Gold Medal in undergraduate research project.
* Volunteer for the "Information Technology Group" and "New Employee Welcome Committee" at the Missouri Public Service Commission.
* Sports Coordinator for the Engineering Graduate Course Council at the University of Saskatchewan.

**PERSONAL DATA:**
US Citizen
Willing to travel

**REFERENCES:**
Available upon request