ABRIGED CURRICULUM VITAE

Engr. Prof. James Momoh; FNSE, FIEEE, FAEng, FAS
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Experience

Dr. James A. Momoh received his Bachelor of Science in Electrical Engineering from Howard University top my class with honors (1972-1975), Master in Electrical Engineering from Carnegie Mellon University (1975-1976), Master in System Engineering from the University of Pennsylvania (1978-1980), PhD in Electrical Engineering from Howard University (1981-1983), and MA in Theology from the Howard University School of Divinity (1989-1991).

Awards, Fellows and Member of the Academy

Dr. Momoh is a Fellow of the Institute of Electrical and Electronics Engineering (IEEE) in 1991 *for Contribution to the Power Engineering Education and Computer Applications for Power System Transmission and Distribution* and a Fellow of Nigerian Academic of Engineering and Academic of Science 2002 and 2004 respectively. He received a highly coveted US White House Presidential Young Investigator (PYI) Award from President Ronald Reagan in 1987 *In recognition of ability and potential for contributing to the scientific and engineering efforts of the nation: for developing AI and Optimization technique for improving power system operation.*

He received the Best Teacher National Award from the America Society for Engineering Education (ASEE) with $5000.00 Cash award in 1989. Awarded US Senate Power Senate Committee Chair Senator Mark O. Hatfield, Senator from Oregon for *development of the fast-Computational tool for Stability for Pacific Northwest Power Grid.*

He also became a Member of Tau Beta PI in 1975 and a Member of the DCA/TBP Faculty Advisory Board from 1986 to 1996. He was the recipient of many scholarships including trustee scholarship award from Howard University for undergraduate study, the Federal Government of Nigeria Post Graduate Scholarship for System Engineering and Ph.D. degrees. He is the recipient of 2021. Distinguished Alumnus Award of the Tau Beta PI , an international Honor Society Conferment in Oct 23 , 2021.

He was elected into membership of the National Academic of Engineering(NAE) USA for his *distinguished contributions to engineering and the development of electric grid and optimization techniques and implementation of advanced technology and policy for emerging electric grids in Africa in October 2020*.

Awarded Fellow Membership into the Nigeria National Institute of Strategic and Policy Studies (NIPS), March 2020.

Executive and Administrative Leadership Positions and Activities performed Appointed and served as The Executive Chairman and CEO of the Nigerian Electricity Regulatory Commission in April 2017 by President of Nigeria President Muhammad Buhari and confirmed by the Nigeria

Senate in 2018 and served through 2020. As the Chairman/CEO, he has led the changes on improved power services in the electricity sector, led the transformational changes in electricity service-based tariffs, and ensured solutions to technical and commercial challenges that affected the industry over the last 15 years after deregulation. He managed over 8billion Naira a year budget and over 200 staff and Provide oversight to the electricity value chain which include Generation, transmission Discos and Bulk Trading Company and of the entire Nigeria Electricity Supply Industry.

By keeping steady hands on the items on the strategic plan, the Commission under Prof Momoh's watch has made significant improvements technical , commercial and human capacity building and health safety and environment

- He Provided administrative leadership to Commissioners and staff of the Commission to ensure effective service delivery: oversight regulation to ensure the electricity value chain; license operators, determine operating codes and standards, establish customer rights and obligations as well as set a cost reflective industry tariff; Ensure or regulate standards of performance of all electricity licensees and monitor performance to ensure standards are met and maintained; Expansion of capacity and network by the issuance of licenses for electricity generation, transmission and distribution as well as development of industry codes and standards, market rules and a multi-year-tariff order; Provide solutions to improve the reliability and availability of electricity across Nigeria. The solutions include: ensuring fiscal sustainability for the power sector, increasing both government and private sector investments in the power transmission and distribution segments, improving transparency through the deployment of smart meters.

Health, Safety and Environment

- Held Health & Safety Bi-Annual meeting between the Commission and Utility Safety Managers for peer review, and analysis of HSE performance status of the Power Sector (Performance Evaluation). Also, attended Environmental Impact Assessment (EIA) evaluation meetings with Federal Ministry of Environment and Stakeholders at various locations to evaluate the environmental impact of some generation and transmission projects across the country. Equally, the Commission had several interventions with State Governments and Public on violations of Rights of Way (RoW) on case by case basis as identified by the Discos.

Accident Investigation & Reporting

Collation, Evaluation and Analysis of Accident/Incident Reports from licensees with the view to un-earthing the root causes and recommending further actions to forestall future occurrence. Conducted several accident investigations across the country and enforced remediation actions to forestall future occurrence. Furthermore, some accident cases were recommended for further enforcement action and payment of penalties.

Promotion of Local Content in the Power Sector

Presentation made to the Honorable Minister of Power, Works and Housing on the local Content Regulation and Local Content Benchmarks developed by the Commission to be set as Thresholds for Local Products and Service in the Nigerian Electricity Supply Industry (NESI). A Local workshop was held by NERC under the Chair meeting the Stakeholders on how to implement the policy on 30% local contents of engineering products and system in Nigeria.

NERC Staff and capacity building

Under the leadership of Professor James Momoh, he provided direction of what and how to evaluate the skills and competency level of the Staff. Time coaching and evaluation of the performances and general activities articulated to meet the Commissions mandate and goals. During his tenure he set up and managed the NERC Academy

- Served as a key platform to share knowledge within the Commission and across the industry. The NERC Academy is envisioned to be a research center of excellence in regulatory practice and electric utility management in Nigeria. So far over thirty (30) industry topics have been discussed with staff and distinguished Commissioners interacting on subtle to unravel the collective array of challenges confronting the NESI.

II Other areas of leadership in Government Agency and Academia Addressing Policy and Technology for a Regulated environment

Dr. Momoh Served as Program Director at the US Government National Science Foundation in the Division of Electrical and Communication System and Control and Networking and Computational intelligence (2001-2004).

In this role, he was responsible for energy, power, and computational intelligence. He designed and built a new interdisciplinary initiative called Electric Power Networks Efficiency and Security (EPNES) that cut across a number of disciplines including economics, environment, policy, system theory, new education pedagogy. Its application to utility and naval ship system test beds, which funded over 17 universities that design and implement tools for the Restructured and Deregulated Power market with funding in excess of $20million.

Dr. Momoh served as Chairman of Howard University's Electrical Engineering department for 11 years (1989-2001), where he increased the enrollment of students, raised over four million USD to modernize the teaching laboratories and inspired the department faculty in attracting research grants and innovation in teaching, he also developed faculty industry partnerships between Howard University and HP, IBM and AT&T.

He built the first rated department with increased production of outstanding undergraduate and graduate students and post doc who are now leaders in academia and industry.

Dr. Momoh has served as the director of the Center for Energy System and Control (CESaC) since 1986 and he was awarded several research grants and contracts of over $27 million. National Science Foundation (NSF), Department of Energy, Bonneville Power Administration, Electric Power Research Institute, ComEd, NASA, Office of Naval Research, Federal Aviation Administration (FAA), USAID, and many others sponsored these grants. He has also authored and co-authored over *300 published journal articles of nine modern power and voltage stability, Optimal Power Flow (OPF), generalized fault studies and transient stability called sampling (Theta), smart grid and micro grids, which led to award of Four Patents to his credit for the innovation and transformational tools and systems. He supervised and graduated over 40 MSc and PhD and 12 Post-Doctoral students.*

III Consultant and Industry Management Advisory and Innovative Work, Capacity Building and Board Membership

Dr. Momoh has developed outstanding research and consultancy portfolio and with different government agencies and department in Nigeria including:

- Development of the blue print for the Establishment of National Power Training Institute (NAPTIN) in 2007.
- Served as Chair and Principal for Development of Nigeria National Science Foundation. Blueprint, 2006 under the leadership of the Honorable Minister Prof. Turner T. Isoun of Federal Ministry of Science and Technology, Nigeria was completed.
- Dr. Momoh provided NASENI in house Staff Capacity training, and development of blue print for the implementation of Power Equipment and Machinery Development Institute (PEMADI) Okene, Kogi state developer of Strategy for System Wide Thinking and Harmonization of all of NASENI Institutes for effective performance to meet its mandate in 2012.
- Dr. Momoh has developed an inhouse Capacity Hands-On training course for NEPA, PHCN, TCN and Distribution companies' staff in the area of Power System Planning and operations. This 2-4weeks course has helped to bridge the gap from the university background to advanced industry level work in the operation and planning of the bulk electric networks. The training program was done from 1998 through 2015.
- He also served as Technical Advisor and Engineering Services Consultant to PHCN and TCN management from 2008 to 2013. Also provided consultancy services to National Electric Power Authority, Nigeria, Fault and Stability Analysis of Bulk Electric Power Grid.

- He served as Nigerian University commission (NUC) LEADS Scholar and Advisor to the National Renewable Center of Excellence sponsored by the World Bank, at Usmani Danfodio University in Sokoto, Nigeria 2011-2012.
- In addition, he served as Carnegie Fellow and visiting Professor at Federal University of Technology at Akure (FUTA) from 2014 - 2017 where he co-sponsored transmission planning research funded by USAID and helped to improve and developed the graduate program in power system and supervised several graduate students to complete their dissertations.
- Key Note Speaker at 28th Nigeria Universities Vice Chancellor Conference at FUTA On The role of Nigeria University in the 21st century – Globalization challenges and prospects-STEM as game changer Nov. 12, 2013.

Board Memberships/Appointments:

- Served as board member to the NSF Center of Excellence at FREEDM Power system at NC State University (2013-2016) and also appointed Board Member for NSF-SME National Science Foundation and Science Mathematics and engineering sponsored programs at Benedict College (1998-2001) He served as a Board Member of NASA/Cleveland State University under the Center for Research in Electronics and Aerospace Technology (CREATE) (1996-2000)
- He serves as the current Chair of many NGO and Foundations for grass root development and empowerment of youths in STEM and skill acquisition.
- He is also a board member of PJAM foundation dedicated to Youth Development and Empowerment in Science, Technology Engineering as well as manufacturing.

IV Industrial Experiences

Electric Power Research Institute and Bonneville Power Administration Collaboration (1984-2002).

- Serve as industry research Director for development innovative technology for power system stability, optimization and application of new technology such as AI and Optimization to power system operation, protection and control problems

Pacific Northwest Laboratory Affiliate Staff Scientist (August, 1990 – September, 2000) variable hours.

- Provided research support and consultancy in optimization and stability assessment methods for energy and power systems requirements.

Middle Atlantic Power Research and Development Associate

- Research and developing power communication load management 1978 -1980.

Principal, Senior Research Fellow, Westinghouse Research Development Corporation, Pittsburgh, PA (1976-1977).

- At Westinghouse Research Development Pittsburgh, Dr. Momoh was responsible for design and development of development of design and development of non-volatile memory and controls strategy for Nuclear reactors

Member of Technical Staff Bell Laboratory, Holmdel, New Jersey (May 1975 – August 1976)

- Research and development in areas of telecommunications; was responsible for the design of CCITT interface software and hardware communications.

Outreach Coordination for National and International linkages and STEM Research and Education.

- In 1992, he developed a summer residential science, technology, engineering and mathematics (STEM) outreach program for 11th and 12th grade students previously called Energy Expert System Institute (EESI), which is now referred to as the Pre-College for Engineering Systems (PCES). The program is still ongoing and it has graduated many successful students who are now distinguished engineers, medical doctors, lawyers and scientists. Today the model of STEM program has received national acclaim for 20 years sustaining funding over two million dollars by NASA, NSF and DOE.
- In addition, Dr. Momoh serves as the founder and coordinator of the International Conference on Power System Planning and Operation (ICPSOP) for the past 30 years. The conference provides an exchange for US and African countries (Nigeria, Ghana, Cote Devoir, South Africa, Kenya, Cape Verde and others) to discuss current power system engineering challenges in the electricity industry.
- Recently served as the convocation speaker the African University of Science and Technology (AUST), Abuja in April,2019.
- He also served as distinguished lecturer for the Nigeria Institute of Policy and Strategic Studies (NIPSS), Kuru Jos, Nigeria in February 24-26, 2020 and has given several lectures in the Nigeria Defense Academy and Strategic Defense Academy in Nigeria.

FELLOWSHIPS, HONORS AND AWARDS

1. Distinguished Alumnus award of the College of Engineering and Architecture 2022.
2. Distinguished Alumnus award of Tau Beta Pi 2022
3. Elected into the membership of the National Academic of Engineering(NAE) for his contribution to Engineering and "Development of optimization scheme to the electric grid and also policy for development of microgrids in Africa"- February 2020 (The induction was held Oct 1-3 2022 in Washington D.C).
4. Awarded fellow Membership into the Nigeria National Institute of Strategic and Policy Studies (NIPS), March 4-6, 2020.
5. A study fellowship for Executive Education at The Harvard University, Boston Massachusetts at the Harvard Kennedy School for "Strategic Management of Regulatory and Enforcement Agencies". March 8-13 ,2020.
6. Best oral presentation Award during Howard Research Symposium on "Framework Implementation for Cyber Physical Energy System on Micro-Grid Test Bed". 2016
7. Life Fellow of the Institute of Electrical and Electronics Engineers, January 2017
8. Fellow Nigeria Academy of Science for contribution to computational intelligence and its

application to power system - May, 2013.

9. National Science Foundation (NSF) – US White House Presidential Young Investigator (PYI) Award, 1987.
10. Fellow, National Academy of Engineering, (April 2006)
11. Distinguished Fellow NSE for Being Nigeria's showcase in *World Power Engineering* "for his immense contributions to Electrical Engineering Education." 2003
12. IEEE Fellow, Citation: "*For Contribution to Power Engineering Education and Computational Methods in Power System Transmission and Distribution 1999*
13. Fellow of Nigeria Society of Engineers (FNSE) 1994
14. Fellow Carnegie Africa in Diaspora 2014 to serve visiting professor at Federal Technology of Technology Akure.
15. "Centennial Award for International Research linkages", College of Engineering Architecture and Computer Science, Howard University, 2012
16. Sloan Foundation Faculty Distinguished Award for Production Of Minority PhD Degrees 2008
17. First recipient of "Outstanding *Faculty Mentor Award,"* US DOE/National Renewable Energy Laboratory (NREL) Minority University Research Associates (MURA), Sustainable Energy from Solar Hydrogen NSF-IGERT combined program 2007,
18. "Outstanding Contribution to Africa and the African Diaspora," Howard University Faculty Senate, 2007
19. First recipient Howard University's Annual Faculty Senate "Award for Scholarship and Creativity," Howard University 2005
20. National Science Foundation (NSF) Distinguished Service Award (2001 -2004)
21. Dr. Joshua Hill Award for Excellence in the DOE-NREL HBCU-PV Research Associate Program 2003
22. NSF Agent of Change Award of Sustained Excellence and Leadership in Engineering Research and Education 2003
23. NSF National Engineering Week Award for Contribution to Engineering Research and Education 2002
24. Award of Excellence in Power Engineering Research and Education International Conference on Power System Operation and Planning 1997, 2000, 2007, 20014
25. Outstanding Performance Award for Teaching from Howard University 2002
26. Excellence Award for "For Sustained Leadership in Power Research and Education" by the former National Electric Power Authority (NEPA), Nigeria 2002
27. Giants in Science QEM/MES Award, Citation: "For *Outstanding Contributions to the Field of Electrical Engineering and to Participation of Minorities in Mathematics, Science and Engineering"*1998
28. Research Excellence Award in development of power system computational tool for stability assessment and control**,** being used by Electric Power Research Institute (EPRI) for USA Member Utilities, was given by U.S. Senator (State of Oregon) 1989
29. American Society for Engineering Education Excellence Teaching Award (Awarded to top six best teachers in the USA) $5,000 cash award 1988
30. Recognized and awarded HU Presidential Merit Superior Performance Awards in 1996, 1997, 1998, 1999, 2000, and 2004 – 2006.
31. IEEE Outstanding Technical Paper Award "Challenges *to Optimal Power Flow"* 1998
32. Summer DuPont, /ASEE Faculty Fellow at Massachusetts Institute of Technology (MIT) Award (for 10 weeks) on training in the area of Advance Artificial Intelligence Concept and Application. 1991

33. Professor of Howard University, Joyce Ladner Award "for is single leadership and magnanimous contributions towards" Building Bridges on Power Systems in USA and Africa 1993
34. Honeywell Professor Academy 1994 for contribution to engineering education.
35. Recipient of "Best Teacher of the Year" Awards 1994, 1985, 1986, and 1987.
36. Biography, "Who's Who" in Technology Today. 1990
37. Listed in "Who's Who" Among American Students' 1982-1983
38. Federal Government of Nigeria (FGN) Full Scholarship Fellowship (MS and PhD academic Awards 1976 – 1978 and 1981-1983,
39. HU Trustee Merit Scholarship, 1972-1975- BSEE

SUMMARY OF PUBLICATIONS, BOOKS, PAPERS AND RESEARCH PRODUCTS PATENT

A**. Technical Publications**

- Cover topics on Power system applications of optimization with Artificial Intelligence (AI) techniques. These techniques allow prediction and forecasting as well as stochastic modeling of load. Optimal power flow ensures efficient and robust control of large electric power systems. Power system operation and planning form the focus of research activities with new computational tools developed for the deregulated utility industry.
- Power system faults identification, classification, modeling and remedial control is of paramount importance as the power market are now deregulated, faster, efficient computational tools for faults analysis and remedial control is key to success in the competitive environment of unbundled services. Artificial intelligence techniques of fault identification and subsequent hardware implementation form the bulk of research ideas of high impacts.
- Development, design and optimization techniques to reduce lead time in manufacturing systems. Areas of impact are design for manufacture of resin transfer molded structures and machining fixture synthesis and optimization.
- Textbooks and other publications have research and educational impact, primarily in the area of power system analysis, power system control and optimization with artificial intelligence and computer applications.

B. Books Authored

1. James A. Momoh, "Adaptive Stochastic Optimization Techniques with Application," CRC 20I5 (Published 2016, CRC Press).

1. James A. Momoh, "Smart Grid: Fundamentals of Design and Analysis," (John Wiley/ IEEE Publication press April 2012)

2. James A Momoh and Lamine Mili, "Economic Market Design and Planning for ElectricPower Systems", IEEE Press Publication 2010.

3. James A Momoh and Lamine Mili, "Operation and Control of Electrical Energy Processing Systems", IEEE Press Publication 2010.

4. James A. Momoh, "Electric Power Systems Applications of Optimization", Taylor and Francis Group LLC, Florida Second Edition 2009

5. James A. Momoh, "Electric Power Distribution, Automation, Protection, and Control," Taylor and Francis Group LLC, Florida, 2008.

6. James A. Momoh, Joe H. Chow, and Felix F. Wu, "Applied Mathematics to Electric Power Systems", Marcel Dekker Inc., New York, 2004

7. James A. Momoh, “Electric Power Systems Applications of Optimization”, Marcel Dekker Inc., New York, First Edition 2001
8. James A. Momoh and M. E. El-Hawary, “Electric Systems, Dynamics, and Stability with Artificial Intelligence Applications”, Marcel Dekker Inc., New York, First Edition 2000
9. James A. Momoh “Energy Processing and Smart Grid” John Wiley/ IEEE (to be published in 2017)

C. Contribution to Chapters of Books published

1. Momoh, James A (2004). Toward Dynamic Stochastic Optimal Power Flow. In: Jennie Si, Andrew G. Barto, Warren Buckler Powell, Don Wunsch (eds.), Handbook of Learning and Approximate Dynamic Programming, (pp. 561-598). New York: Wiley.
2. Momoh, James A., & Zivi, Edwin (2004). Control, Optimization, Security, and Selfhealing of Benchmark Power Systems. In: Jennie Si, Andrew G. Barto, Warren Buckler Powell, Don Wunsch (eds.), Handbook of Learning and Approximate Dynamic Programming, (pp. 599-633). New York: Wiley
3. Grand Challenges to Optimal Power Flow, Towards Dynamic Stochastic Optimal Power Flow,” Learning and Approximation in Real Systems” IEEE Press, 2004
4. Control, Optimization and Self-healing of Benchmark Power System to “ Learning and Approximation in Real Systems” IEEE Press, 2004
5. IEEE Tutorials Expert Systems Application to Power Systems, IEEE Press 1996
6. IEEE Tutorial Fuzzy logic and application to Power Systems IEEE Press 1997
7. IEEE Tutorial on Power Systems, Challenges to Optimal Power Flow, IEEE Press 1998

D. Conference Proceedings

1. 1st International Workshop on Voltage Collapse and Voltage Regulation (IWVCR), Lagos, Nigeria.
2. 2nd International Workshop on Power System Operation and Planning (IWPSOP), Lagos, Nigeria, January.
3. 3rd International Conference on Power Systems Operation and Planning (ICPSOP), Abidjan, Cote d’Ivoire.
4. 4th International Conference on Power Systems Operation and Planning, Accra (ICPSOP), Ghana.
5. 5th International Conference on Power Systems Operation and Planning (ICPSOP), Abuja, Nigeria.
6. 6th International Conference on Power Systems Operation and Planning (ICPSOP), Praia, Cape Verde.
7. 7th International Conference on Power Systems Operation and Planning (ICPSOP), Cape Town, South Africa.
8. 8th International Conference on Power Systems Operation and Planning (ICPSOP), Abuja, Nigeria.
9. 9th International Conference on Power Systems Operation and Planning (ICPSOP), Nairobi, Kenya.
10. Tenth International Conference on Power system planning and Operation : Privatization and Restructuring of the Power Industry- Practical steps towards successful implementation.

E. Selected Technical Reports (Generated over 100 Technical Reports)

1. “Solar Power System Stability and Control,” Final Report, December, 1996

2. “Power Management and Advanced Control System for Hybrid Electrical Vehicle,” National Aeronautics and Space Administration (NASA).
3. “Value-based Reliability for Planning & Operations,” Final Report, Electric Power Research Institute (EPRI)
4. “Minority Research Enhancement Program in Power Systems,” National Science Foundation (NSF)
5. “International Conference on Power Systems Operation & Planning,” III ICPSOP, Abidjan, Cote d’Ivoire, January 1997, Full Report, May 1997.
6. “Balancing Reliability & Cost, Mid-Year Report,” National Science Foundation (NSF), RIMI Grant, 1997
7. Momoh, J. A., "An Expert System Assisted Power Flow Evaluation," Final Report, Dec. 1989, NSF/PYI ECS865759
8. Momoh, J. A., "Distributed Expert System for Power System Security," Final Report, 1990, NSF/PYI E85-86575.
9. Momoh, J. A., "Multiple Objective Power Flow with Coherency Simplification of Network, June 1991. NSF/PYI ECS-865/559
10. Momoh, J. A., "Application of Interior Point Optimization methods for Power System,” Dec. 1983, NSF/PYI-ECS 8657559
11. Momoh, J. A., "Knowledge Based Voltage Collapse and Detection and Prevention,” May 1990, Electric Power Research Institute (EPRI), 2473-36
12. Momoh, J. A., "Feasibility of Quadratic Interior Methods Power Flow,” Final Report, Dec. 1992, Electric Power Research Institute (EPRI), 2473-36.
13. Momoh, J. A., "A Generalized Corrective Measure for Power System Operation", Final Report, US Department of Energy (DOE), 1988
14. Momoh, J. A., "Development of Power System Laboratory and Research activities,” Final Report, US Department of Energy (DOE), 1986
15. Momoh, J. A., "Sampling Technique for Stability Assessment Part I and Part II,” Final Report Bonneville Power Administration (BPA), Part I in 1986 and Part II in 1988
16. Momoh, J. A., "Dynamic Security Assessment for Egyptian Electric Grid,” 1991
17. Momoh, J. A., “DOE computation techniques for Future Electric Grid, Cornell University,” April 2011
18. National Science Foundation (NSF-Pricing)-“Efficient Operation and Control of Power System Networks with Increased DG Penetration”, September, 2011.
19. National Science Foundation (NSF-ICPSOP):”Workshop: Sustainable Energy Development: A case for US and Africa; held in Nairobi, Kenya on January 15-19, 2012.
20. National Science Foundation (NSF-IUCRC): “Collaborative Research: PSERC Collaborative Proposal for a Phase III Industry University Cooperative Research Center Program”; March, 2012.
21. Centralized and Distributed Generated Power Systems - A Comparison Approach: The Future Grid to Enable Sustainable Energy Systems, DOE “James A. Momoh, Sakis Meliopoulos, and Robert Saint”, June 2012.

E**. SELECTED HARDWARE AND SOFTWARE RESEARCH AND PRODUCTS DEVELOPED**

Summary of Research Contributions (Several commercialized programs and research grade programs)

- Development of Robust Interior Point Optimal Power Flow (RIOPF) software for

Electric Power Research Institute (EPRI)

- Development of value-based reliability software with voltage stability constraints for large electric power systems. Cost-Benefit Analysis software module generalized for evaluating different remedial control actions has been developed and tested using industry benchmark power system network.
- Develop Intelligent Systems Based Power Flow and security assessment software using Artificial Neural networks and Expert systems method for real time simulation
- Develop program for Unified Stability Index for bulk power systems analysis. The program is based on new concepts for stability assessment which including energy functions for transient stability and power flow based for voltage stability studies. These software packages are proprietary entity being commercialized by EPRI the sponsoring agency.
- Several software packages based on advanced systems concepts were developed as results of grants and contracts from DOE, NASA, NREL and ONR. Among them are development of optimal architecture for the US Navy Integrated Power System (IPS) studies of naval benchmarks systems and development of integrated system software for voltage stability, congestion management and reliability using state-of-the-art technology for space and Naval power systems.

PATENTS AWARDED AND PENDING

1. System and method of monitoring and optimizing power quality in a network. US Patent 8244406 granted 2012
2. Test Bed platform for advance Multistage automation and control for Smart and Micro Grid. US Patent number - 20160147244 Published in 2016
3. Transient protection box for approach lighting system for integrated cabinet control box (ICC)- US Patent number 20180362186 published in 2018

REFEREED JOURNAL PUBLICATIONS AND PROCEEDINGS

Publications record stems from research performed for various agencies, utilities and industries including the National Science Foundation (NSF), Electric Power Research Institute, Bonneville Power Authority (BPA), Los Angeles Water and Power Department, National Aeronautics and Space Administration (NASA), Commonwealth Edison, National Renewable Energy Laboratory (NREL), Office of Naval Research (ONR), and Federal Aviation Agency (FAA), USAID. Dr. Momoh has published over 300 papers in refereed journal Articles and proceeding and these include: (recent papers of over ten are not included)