Saifur Rahman

Joseph R. Loring Professor of Electrical and Computer Engineering
Director, Advanced Research Institute, National Capital Region
Virginia Tech, U.S.A.

Address:

VT Advanced Research Institute
900 N. Glebe Road
Arlington, VA 22203 U.S.A.
Phone: (571) 858-3300
E-mail: srahman@vt.edu

Relevant Websites:

Advanced Research Institute: www.ari.vt.edu
Energy Center: www.ceage.vt.edu
Critical Infrastructure: www.cimap.vt.edu
Web: www.saifurrahman.org

EDUCATION

Ph.D., Electrical Engineering, Virginia Polytechnic Institute and State University
M.S., Electrical Sciences, State University of New York at Stony Brook
B.Sc., Electrical Engineering, Bangladesh University of Engineering and Technology, Dhaka

EXPERIENCE

Academic

1. Founding Director, Advanced Research Institute, Virginia Polytechnic Institute and State University, September 1998 to present.
2. Founding Director, Center for Energy and the Global Environment, Virginia Polytechnic Institute and State University, January 1994 to present.
3. Founding Director, Northern Virginia Division, College of Engineering, Virginia Polytechnic Institute and State University, July 2003 to June 2006.
4. Joseph R. Loring Professor of electrical and computer engineering, Virginia Polytechnic Institute and State University, July 2005 to present.
5. Professor, electrical and computer engineering, Virginia Polytechnic Institute and State University, September 1987 to June 2005.
6. Program Director, Electrical and Computer Engineering Program, Northern Virginia Center, Virginia Polytechnic Institute and State University, September 1998 to June 2003.
7. Associate Professor, electrical engineering, Virginia Polytechnic Institute and State University, September 1983 to August 1987. *Tenure*: - Fall 1983.
8. Assistant Professor, electrical engineering, Virginia Polytechnic Institute and State University, September 1979 to August 1983.
9. Assistant Professor, electrical engineering, Texas A&M University, September 1978 to August 1979.

Industry/Government

1. Program Director, Electrical and Communications Systems Division, National Science Foundation, Arlington, Virginia, September 1996 to September 1999.
2. Visiting Research Scientist, AI Laboratory, Computer and Communications Research Center, Tokyo Electric Power Company, Tokyo, JAPAN, September 1992 to June 1993.
3. Visiting Senior Engineer, Corporate Nuclear Safety and Research Department, Carolina Power and Light Company (now Duke Energy), Raleigh, North Carolina, June to September 1981.
4. Visiting Research Assistant, Energy Policy Analysis Division, Brookhaven National Laboratory, New York, May to August 1975.

Commission/Committee

1. Member, Commonwealth of Virginia Governor's Executive Committee on Reduction of Energy Consumption in the Private Sector, May 2015 to present.
2. Member, Board of Directors, Virginia Energy Efficiency Council, January 2014 to present.
3. Member of Advisory Committee on Virginia's Critical Infrastructure, Joint Commission on Technology and Science, Commonwealth of Virginia, July 2001 to June 2004.

Advisory Board/Expert Review Panel

1. *Arlington County, Virginia*, Member of the Community Energy Plan Implementation Review Committee (CEPIRC), January 2014 to December 2016.
2. *Virginia Energy Efficiency Council,* Member of the Board, October 2014 to present.
3. *U.S. National Research Council*, Member, Partnership for Enhanced Engagement in Research (PEER) Program Oversight Committee, Washington, D.C., December 2011 to November 2014.
4. *U.S. Department of Energy*, "DOE SunShot Program Review", Arlington, Virginia, May 2013.
5. *US National Science Foundation*, Chair of the Advisory Committee, International Science and Engineering, September 2010 to September 2013.
6. *Arlington County, Virginia*, Member of the Community Energy Advisory Group, June 2011 to December 2012.
7. *Arlington County, Virginia*, Member of the Community Energy and Sustainability Task Force, January 2010 to May 2011.
8. *US National Science Foundation*, Member of the Advisory Committee, International Science and Engineering, September 2007 to September 2010.
9. *US National Science Foundation*, Member of the Advisory Committee, GPRA Performance Assessment, January 2009 to December 2009.
10. *U.S. Department of Energy*, "DOE Distributed Energy Resources Program Review", Washington, D.C., November 2001.

11. *U.S. Department of Energy*, "PV Systems Evaluation, Balance-of-Systems, and Standards and Codes", Denver, Colorado, October 1994.
12. *Electric Power Research Institute,* "Industry Advisory Group on Decision Support Methods", Palo Alto, California, September 1990.
13. *U.S. Department of Energy*, "Review of Photovoltaics Research" Bethesda, Maryland, August 1989.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

IEEE (Power Engineering Society, Industry Applications Society), *FELLOW,* 1974 to present.
Conference Internationale des Grandes Reseaux Electriques a haute tension (CIGRE), 1992 to 1996.

AWARDS, FELLOWSHIPS

1. "IEEE Technical Activities Board Hall of Honor", 2014 Honoree,

   http://www.ieee.org/about/volunteers/tab/tab_hall_of_honor.html.
2. "Outstanding Power Engineering Educator Award", IEEE Power & Energy Society, 2013.
3. "Meritorious Service Award", IEEE Power & Energy Society, 2012.
4. "IEEE-USA Divisional Professional Leadership Award", 2012.
5. "IEEE-USA Professional Achievement Award", 2011.
6. "U.S. Speaker and Specialist Grant", U.S. Department of State's Office of International Information Programs (IIP), Washington, D.C., Guest Lecturer visit to Hong Kong, May 2005.
7. "IEEE Millennium Medal" for outstanding achievements and contributions to IEEE, April 2000.
8. "IEEE Fellow" for outstanding contributions to power engineering education, December 1997.
9. Fulbright Lecturer Award, "Research and Lecture Visit to Yemen", United States Information Service, Sana'a, Republic of Yemen, June 1996.
10. "IEEE Millennium Medal", 1994.
11. "Fellowship - IBM Workshop on Knowledge Based Systems", American Society for Engineering Education, two-week workshop at the IBM Systems Research Institute, New York, June 1987.
12. "Recognized to be in the "Top 10 percent of Teaching Faculty" in the College of Engineering at Virginia Tech, 1986.
13. "Fellowship - Institute on Energy and Engineering Education", U.S. Department of Energy, Ohio State University, Columbus, Ohio, April 1984.
14. "Outstanding Young Engineer", IEEE Virginia Mountain Section, 1983.
15. "Summer Faculty Fellow", Virginia Tech, 1983.

U.S. SENATE HEARING

Appeared before the *U.S. Senate Subcommittee on Energy Research and Development* to testify on Senate Bills S.1686, "Renewable Energy/Fuel Cell Systems Integration Act of 1985", and S.1687, "To Develop a National Policy for the Utilization of Fuel Cell Technology". Washington, D.C., 24 February 1986, *U.S. Senate Hearing Record,* No. 99-595, pp.123-136.

PROFESSIONAL SOCIETY ACTIVITIES

President-elect, IEEE Power & Energy Society, 2016 - 2017.
Member, Board of Governors, IEEE Society for the Social Implications of Technology, 2014 - present.
Vice President, Publications, IEEE Power & Energy Society, 2012 - 2013.
Vice President, New Initiatives & Outreach, IEEE Power & Energy Society, 2008 - 2011.
Vice Chair, IEEE Publications Board, 2010.
Chair, IEEE Products & Services Committee, 2007 - 2010.
Chair, IEEE Publications Board, and **Director,** IEEE Board of Governors - 2006.
Vice Chair, IEEE Publications Board, and **Chair**, IEEE TAB Periodicals Committee, 2004 - 2005.
Member, IEEE Information Technology Strategic Committee, 2003 - 2004.
Vice President, Technical Information Services, IEEE Power Engineering Society, 2001 - 2003.
Vice President, Education/Industry Relations, IEEE Power Engineering Society, 1999 - 2000.
Chair, IEEE Power Engineering Society Publications Board, 2001 - 2003.
Chair, IEEE Lifelong Learning Council, 2002.
Chair, IEEE Society Education Committee, 1999 - 2001.
Member, IEEE TAB Periodicals Committee, 2001 - 2003.
Member, IEEE PES Education Committee, 1999 - present.
Member, IEEE PES Energy Development Sub-committee, 1988 - present.
Finance Chairman, IEEE Power Electronics Specialists Conference, June 1987.
Member, Southeastern Electric Utility Research Group, 1986.
Awards Chairman, Virginia Mountain Section, IEEE, 1986 - 1987.
Member, Executive Committee, Virginia Mountain Section, IEEE, 1986 - 1987.
Member, Technical Program Committee, IEEE Southeastcon, Richmond, 1986.
Member, IEEE PES Load Forecasting Working Group, 1985 - 1997.
Chair, Virginia Mountain Section, IEEE, 1985 - 1986.
Member, IEEE Virginia Council, 1985 - 1986.
Member, IEEE PES Photovoltaics Working Group, 1984 - 1997.
Vice-Chairman, Virginia Mountain Section, IEEE, 1984 - 1985.
Member, IEEE PES Customer Products & Services Sub-committee, 1983 - present.
Member, IEEE PES System Planning Sub-committee, 1982 - 1997.
Chair, Virginia Mountain Chapter, IEEE PES, 1981 - 1982.
Secretary/Treasurer, Virginia Mountain Chapter, IEEE PES, 1980 - 1981.
Member, IEEE PES Long Range System Planning Task Force, 1980 - 1996.

JOURNAL/MAGAZINE EDITORSHIP

IEEE Electrification Magazine, **Editor-in-Chief,** 2013 - 2015.

IEEE Transactions on Sustainable Energy, **Consulting Editor,** 2013 - present.

IEEE Transactions on Sustainable Energy, **Editor-in-Chief,** 2009 - 2012.

Journal of Communications, **co-Guest Editor**, vol. 4, no. 5, Special Issue: Wireless Communications for Emergency Communications and Rural Wideband Services, June 2009.

Proceedings of the IEEE, **Guest Editor** Hydrogen Economy, October 2006.

IEEE Power & Energy Magazine, **Guest Editor**, November - December 2003.

Proceedings of the IEEE, **Guest Editor** Alternate Energy Systems, December 2001.

International Journal of Energy Systems, **Associate Editor**, October 1986 - September 1988.

JOURNAL EDITORIAL BOARD

Journal of Modern Power Systems and Clean Energy, Member of the Advisory Board, 2013 - 2015.

IEEE Transactions on Sustainable Energy, Consulting Editor, 2013 - present.

Proceedings of the IEEE, Member of the Editorial Board, 2004 - 2009.

Journal of Energy & Environment, Member of Editorial Advisory Board, 2001 - present.

Electric Power Components and Systems, Member of Editorial Board, 2000 - 2010.

International Journal of Renewable Energy Engineering, Member of Editorial Advisory Board, 1998 - 2006.

EDITOR OF PROCEEDINGS, TRANSACTIONS AND MANUALS

1. *Energy Modeling and Simulation*, (IMACS Transactions on Scientific Computation), edited by A. Kydes, A. K. Agarwal, S. Rahman, R. Vichnevetsky and W. F. Ames, North *Holland Publishing Company*, 1983, 405p.
2. *Power System Simulator Operations Guide*, Saifur Rahman and Brian Matheny, submitted to the *Jet Propulsion Laboratory*, April 1983, 39p.
3. *Proceedings of the International Conference on Energy Development Planning for Bangladesh*, Dhaka, Bangladesh, edited by Saifur Rahman, submitted to the *U.S. National Science Foundation*, August 1986, 237p.
4. *User's Guide to the AT&T 3B2/300 Based Load Forecasting System*, S. Rahman, R. Bhatnagar and M. Baba, submitted to *Old Dominion Electric Cooperative*, September 1986, 81p.
5. *User's Guide to Load Management Simulator*, S. Rahman and S. Lahouar, submitted to the *Center for Innovative Technology*, December 1990, 29p.
6. *Proceedings of the International Symposium on Electric Energy Systems*, Dhaka, Bangladesh, edited by S. Rahman, N. Islam and A. Haque, submitted to the *US National Science Foundation*, December 1993, 550p.
7. *Proceedings of the IEEE Conference on Hydrogen Economy: Its Impact on the Supply of Electricity,* Washington, D.C., edited by Saifur Rahman, July 2004, www.ieee.org/power/hydrogen.

8. *Proceedings of the NSF International Workshop on Nationwide Internet Access & Online Applications,* Dhaka, Bangladesh, edited by Saifur Rahman, December 2004, www.ari.vt.edu/internet.

KEYNOTE SPEECHES

1. "Status of Electric Power Industry in the Changing World", S. Rahman**,** Keynote Paper, *International Symposium on Electric Energy Systems*, Dhaka, BANGLADESH, 13 December 1993, 17p.
2. "Global Impressions on Electric Power Sector Restructuring", keynote speech presented at the *International Workshop on Power System Operation and Planning*, Lagos, NIGERIA, 11 January 1995.
3. "Electric Energy, Environment and Demand-Side Management," Keynote Address presented at the *IEEE International Conference on Electricity Sector Development and Demand-Side Management*, Kuala Lumpur, MALAYSIA, 21 November 1995, 30p.
4. "Sustainable electric energy systems: A global perspective", Keynote Paper at the *IEEE International Conference on Electrical & Computer Engineering*, Dhaka, BANGLADESH, 5-6 January, 2001, 32p.
5. "Power for the Internet", Saifur Rahman and Monica Mallini-Rourke, invited **Keynote Lecture**, *Proceedings of IEEE Annual Conference and Exhibition*, Kolkata, INDIA, 20-21 December 2002, pp. 466-472.
6. "Distributed Generation, Demand Management and Renewables – Issues for the Future", **Keynote Speech** delivered at the *Electric Energy Society of Australia 79th Annual Conference*, Sydney, AUSTRALIA, 8 August 2003, 48p.
7. "Green Power History and Potentials", **Keynote Speech,** *IEEE Symposium, Tecnologico de Monterrey, Monterrey*, MEXICO, 17 October 2003, 52p.
8. "Information and Communication Technologies: Powerful Enabler or Weakest Link", **Keynote speech**, *Proc., EAPC/PfP Workshop on Critical Infrastructure Protection &Civil Emergency Planning*, Zurich, SWITZERLAND, 22-24 September 2005, pp. 42-48.
9. "Distributed Generation Technologies and Energy Efficiency for the Mitigation of GHG Emissions", **Keynote Speech**, *Conference on International Experience and Potential Applications of Renewable Energy in Hong Kong*, Hong Kong Institution of Engineers, HONG KONG, 6-7 October 2005, 47p.
10. "A Comprehensive Approach to Critical Information Infrastructure Assurance", **Keynote speech,** *Euro-Atlantic Symposium on Critical Information Infrastructure Assurance*, Riva San Vitale, SWITZERLAND, 23-24 March 2006, 30p.
11. "Energy Use and National Energy Efficiency Strategies in China, India, the United States and the European Union", S. Rahman, **Keynote speech** at the *Industrial and Commercial Use of Energy Conference*, Cape Town, SOUTH AFRICA, 22-23 May 2006, 8p.

12. "ICT-Integrated Energy Infrastructure", S. Rahman, **Keynote speech**, *4th EAPC/PfP Workshop on Critical Infrastructure Protection & Civil Emergency Planning*, Zurich, SWITZERLAND, 22-24 August 2006, 23p.
13. "The Protection of Critical Infrastructures: Concept, Evolution and Complexities", Professor Saifur Rahman, **Opening Keynote** at the *1st MAS ETH SPCM Forum*, Zurich, SWITZERLAND, April 2008, 46p.
14. "Renewable Energy Technologies: A Global Perspective", Professor Saifur Rahman, **Keynote Speech** at *DRPT 2008 International Conference*, Nanjing, CHINA, April 2008, 51p.
15. "Alternative Energy Technologies for an Evolving Electric Power Generation Landscape", Professor Saifur Rahman, **Keynote speech**, *39th Energy Information Dissemination Program, Oklahoma State University*, Stillwater, OKLAHOMA, June 2008, 48p.
16. "Role of Renewable Energy in Empowering the Disadvantaged", **Keynote speech**, Saifur Rahman, *IEEE TENCON*, Hyderabad, INDIA, November 2008, 56p.
17. "The Smart Grid: Its Benefits and Challenges", *Keynote Speech, International Forum on Smart Grid,* Nanjing, CHINA, 17-18 October 2009, 38p.
18. "An Introduction to Microgrid for Integrated Distributed Generation and Energy Efficiency Applications", *Keynote Speech, IET APSCOM International Conference*, HONG KONG, 9- 11 November 2009, 33p.
19. "Role of Renewable Energy in Mitigating the Need for Large Central Station Power Plants", **Keynote speech**, *ICDERT 2009*, Dhaka, BANGLADESH, 17 December 2009, 55p.
20. "Sustainable Wind Power Development Technology and Policy Perspectives", *Keynote speech, NSF Workshop on Wind Energy, Cairo*, EGYPT, 23 March 2010, 34p.
21. "The Smart Grid: Its Opportunities and Challenges", *Keynote speech, Asia-Pacific Power and Energy Engineering Conference (IEEE PES APPEEC*), Chengdu, CHINA, 29 March 2010, 44p.
22. "The Smart Grid Needs a Smart Utility", **Keynote Speech** *at the Energy and Sustainable Development (ESD 2010),* Chiang Mai, THAILAND, 2-4 June 2010, 34p.
23. "The Smart Grid- What Will it Take to Make it Possible", **Opening Keynote Speech** *at IEEE Oregon Smart Grid Workshop*, Portland, OREGON, 8 September 2010, 26p.
24. "The Growth of Smart Grid- A Roadmap to Development", **Opening Keynote Speech** *at the IEEE Andescon,* Bogota, COLOMBIA, 15 September 2010, 35p.
25. "Evaluating the International Renewable Energy Market for the Creation of a Longstanding and Secure Energy Policy", **Keynote speech** *at GCC Solar Power Meeting*, Doha, QATAR, 13-14 December 2010, 51p.
26. "Application of the Smart Grid to Achieve Demand Response", **Keynote presentation** at *IEEE International Conference in ECE*, Dhaka, BANGLADESH, 18-20 December 2010, 32p.
27. "Smart Grid as a Solution Provider for Integration of Distributed Generation", **Keynote Presentation** *at Asia Pacific Power & Energy Engineering Conference*, Wuhan, CHINA, 26 March 2011, 30p.

28. "Smart Grid as an Enabler for Distributed Generation", **Keynote presentation**, *International Conference & Utility Exhibition*, Pattya, THAILAND, 29 September 2011, 39p.

29. "Development and Innovation of Smart Grids in the United States", **Keynote Presentation**, *Innovative Smart Grid Technologies (ISGT) Conference- IEEE Power & Energy Society*, Medellin, COLOMBIA, 19 October 2011, 46p.

30. "Smart Grid and its Role in Reducing Peak Demand and Improving Electricity Delivery", Keynote Speech, IEEE Power & Energy Society Innovative Smart Grid Technologies Conference, Perth, AUSTRALIA, 14 November 2011, 44p.

31. "Smart Grid Applications in the United States: Challenges and Opportunities", **Keynote Speech,** IEEE International Conference on Energy, Automation and Signals, SOA University, Orissa, INDIA, 28 December 2011, 47 p.

32. Electric Vehicles and Smart Grid Challenges and Opportunities", **Keynote Presentation**, First International Conference on Renewable Energies and Vehicular Technology (REVET), Hammamet, TUNISIA**,** 26 March 2012, 37p.

33. "Solar and Wind Technologies: Necessary Policy Support for their Deployment", **Keynote Speech**, *Workshop on Solar Energy in Bangladesh Ministry of Housing Public Works World Habitat Day*, Dhaka, BANGLADESH, 2 October 2012, 45p.

34. "Smart Grid and its Role in Managing Efficient Power Systems", **Keynote Speech**, IEEE International Conference on Emerging Technologies, Islamabad, PAKISTAN, 8 October 2012, 25p.

35. "Renewable Energy for Grid-Connected and Off-Grid Applications", **Keynote Speech**, *IEEE Symposium*, Peshawar, PAKISTAN, 10 October 2012, 44p.

36. "How can the Smart Grid add Value to Distributed Generation", **Keynote Presentation**, *IEEE Power & Energy Conference (PECON 2012),* Kota Kinabalu, MALAYSIA, 3 December 2012, 40p.

37. "Smart Grid and its Role in Managing Efficient Power Systems", **Keynote Speech**, STEM Conference at King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, SAUDI ARABIA, 18 December 2012, 51p.

38. "IEEE PES Conference on Innovative Smart Grid Technologies ISGT-LA 2013", **Keynote Presentation**, ISGT LA 2013 Conference, Sao Paulo, BRAZIL, 15 April 2013, 38p.

39. "The Smart Grid: Technological & Regulatory Challenges", **Keynote Speech**, IEEE EUROCON, Zagreb CROATIA, 4 July 2013, 39p.

40. "Opportunities and Challenges of Deploying the Smart Grid", **Keynote Speech**, EPECS, Istanbul, TURKEY, 2 September 2013, 39p.

41. "The State of the Art in Smart Grids", **Keynote Speech**, International Conference in Power Systems, Kathmandu, NEPAL, 28 September 2013, 49p.

42. "Opportunities and Challenges in Sustainable Energy Generation", **Keynote Speech**, International Conference and Utility Exposition, Pattaya City, THAILAND, 20 March 2014, 51p.

43. "Sustainable Energy Generation: Is this Practical in the Short Term", **Keynote Speech**, 2014 PES ISGT Asia, Kuala Lumpur, MALAYSIA, 21 May 2014, 55p.

44. "The Interaction of Renewables and Demand Response in a Smart Grid", **Keynote Speech**, 8th IEEE GCC Conference, Muscat, OMAN, 1-5 February 2015, 35p.

45. "Challenges and Opportunities in Renewable Energy: Role of the Smart Grid", **Keynote Speech,** 10th, IET APSCOM International Conference, HONG KONG, 8-11 November 2015, 28p.

46. "Smart Buildings and Infrastructures", **Keynote Speech**, IEEE IoT World Forum, Milan, ITALY, 15 December 2015, 22p.

47. "A Global View of the Commercial Scale Renewable Energy and the Smart Grid", **Keynote Speech**, IEEE Women in Engineering Conference, Bangladesh University of Engineering and Technology, Dhaka, BANGLADESH, 20 December 2015, 28p.

48. "Challenges and Opportunities in Renewable Energy: Role of the Smart Grid", **Keynote Speech,** IEEE International Conference on Communication and Information Technology, Military Institute of Science & Technology, Dhaka, BANGLADESH, 21-23 December 2015, 29p.

49. "The Smart Grid: It's Value in a Power System", **Keynote Speech**, IEEE International Conference on Electrical Engineering and Information & Communication Technology", Dhaka, BANGLADESH, 22-24 September 2016, 44p.

50. "The Design, Development and Use of the Smart Grid", **Keynote Speech**, India National Power System Conference, IIT Bhubaneswar, INDIA, 19-21 December 2016, 41p.

TECHNICAL CONFERENCE ORGANIZER/CHAIR

1. Organizer of the *"International Conference on Energy Development Planning*" in Dhaka, BANGLADESH in November 1985. This conference was organized jointly with Bangladesh University of Engineering and Technology and was co-funded by the U.S. National Science Foundation and the U.S. Agency for International Development.
2. Organizer and Technical Program Chairman, *"International Symposium on Electric Energy Systems*", Dhaka, BANGLADESH, December 1993. This symposium was organized jointly with Bangladesh University of Engineering and Technology, and sponsored by U.S. National Science Foundation.
3. Co-chair – "*Workshop on Intelligent Distributed Autonomous Power Systems"*, sponsored by the US National Science Foundation and the Japan Society for the Promotion of Science, organized in collaboration with the Yokohama National University, Hakone, JAPAN, July 1998.
4. Co-chair – "*Second Global Engineering Education Workshop*", jointly organized by Virginia Tech, Ecole Polytechnique Federal de Lausanne, Switzerland and Institut National Polytechnique de Grenoble, France, Crystal City, VIRGINIA, November 1998.
5. Chair – "*IEEE Web Education Workshop*", Arlington, VIRGINIA, 11-12 December 1999.
6. Chair – *"IEEE Web Education Workshop 2"*, Alexandria, VIRGINIA, 21-22 May 2001.
7. General Chair – *"IEEE International Conference: The Hydrogen Economy: It's Impact on the Future of Electricity"*, Washington, D.C., 19-20 April 2004.

8. Chair, *"IEEE Panel of Editors Annual Meeting"*, Boston, MASSACHUSETTS, 23-24 April 2004.
9. General Chair – NSF International Workshop, *"Nationwide Internet Access & Online Applications"*, Dhaka, BANGLADESH, 22-24 May 2004.
10. Chair, *"IEEE Panel of Editors Annual Meeting"*, New Orleans, LOUISIANA, 8-10 April 2005.
11. Chair, *"IEEE Panel of Editors Annual Meeting"*, Montreal, CANADA, March 2006.
12. General co-Chair, *"2nd International Workshop on Critical Information Infrastructure Security"*, Malaga, SPAIN, 3-5 October 2007.
13. Co-chair, *"NSF Workshop on Advanced Power Conditioning for Alternate Energy Systems",* National Institute for Standards and Technology (NIST), Gaithersburg, MARYLAND, 28-29 May 2008.
14. General Chair, "*Asia-Pacific Power & Energy Engineering Conference",* Wuhan, CHINA, 28-30 March 2009.
15. General co-Chair, "International Forum on Smart Grid", Nanjing, CHINA, 17-18 October 2009.
16. General Chair, "*Asia-Pacific Power & Energy Engineering Conference",* IEEE Power & Energy Society, Chengdu, CHINA, 28-31 March 2010.
17. General Chair, "*Asia-Pacific Power & Energy Engineering Conference",* IEEE Power & Energy Society, Wuhan, CHINA, 25-27 March 2011.
18. General Chair, "*Asia-Pacific Power & Energy Engineering Conference",* IEEE Power & Energy Society, Shanghai, CHINA, 26-28 March 2012.
19. General Chair, "Innovative Smart Grid Technologies Conference", IEEE Power & Energy Society, Washington, D.C., 24-27 February 2013.
20. General Chair, "Innovative Smart Grid Technologies Conference", IEEE Power & Energy Society, Washington, D.C., 19-22 February 2014.
21. General Chair, "Innovative Smart Grid Technologies Conference", IEEE Power & Energy Society, Washington, D.C., 17-20 February 2015.

TECHNICAL SESSION ORGANIZATION AND CHAIRMANSHIP

1. Session organizer and chairman of: "Wind Energy Session" - at the 6th *Miami International Conference on Alternative Energy Sources,* Miami, FLORIDA, December 1983.
2. Session co-chairman: "Assessment of Alternative Energy Resources and Technologies" - at the *International Conference on Energy Development Planning*, Dhaka, BANGLADESH, November 1985.
3. Session organizer and chairman of: "Electric Utility System" - at the *IEEE Southeastcon*, Richmond, VIRGINIA, March 1986.
4. Session co-chairman of: "Renewable Energy in Indonesia" - at *The 2nd Energy Conference, University of Sriwijaya*, Palembang, INDONESIA, July 1989.

5. Session organizer and chairman of: "Photovoltaics and Wave Energy" - at the *Intersociety Energy Conversion Engineering Conference*, Arlington, VIRGINIA, 6-11 August 1989.

6. Session organizer and chair of: "Planning, Analysis and Control of Power Systems", at the *Fourth IEEE Region 10 International Conference*, Bombay, INDIA, 22-24 November 1989.

7. Session co-chairman of: "Fuzzy Control I" - at the *Second International Forum on Applications of Neural Networks to Power Systems*, Yokohama, JAPAN, April 1993.

8. Session chair of: "Generation Mix" - at the *International Symposium on Electric Energy Systems*, Dhaka, BANGLADESH, December 1993.

9. Session chairman of: "Abnormal Operations Analysis" - at the *2nd International Conference on Advances in Power Systems, Control, Operation and Management*, HONG KONG, December 1993.

10. Organizer and chairman of Panel - Distributed Generation and Their Impact on the Power System, "*IEEE Power Engineering Society Summer Meeting*", San Francisco, CALIFORNIA, 27 July 1994.

11. Session chair of: "Fuzzy Control Systems", *Eighth National Power Systems Conference,* New Delhi, INDIA, 16 December 1994.

12. Session chairman of: "Energy Efficiency and DSM", *IEEE International Conf. on Power Sector Development and Demand Side Management*, Kuala Lumpur, MALAYSIA, 21 November 1995.

13. Session Chairman of: "Panel on Manpower Needs in Electric Power Industry", *American Power Conference*, Chicago, ILLINOIS, April 1997.

14. Session Chairman of: "Panel on Innovations and Manpower Needs", *American Power Conference*, Chicago, ILLINOIS, 15 April 1998.

15. Session Chairman of: "Panel on Distributed Generation", *NIST Conference on Challenges for Measurements and Standards in a Deregulated Electric Power Industry*, Arlington, VIRGINIA, 6-8 December 1999.

16. Session Chairman of: "Power Systems", *2nd International Conference on Electrical and Computer Engineering, ICECE 2002*, Dhaka, BANGLADESH, 26-28 December 2002.

17. Session Chair of: "Challenges in Restructured Energy Systems", *IEEE PowerCon*, New Delhi, INDIA, 13 October 2008.

18. Session Chair of: "Renewable Energy Sources", *IEEE TENCON*, Hyderabad, INDIA, November 2008.

19. Panel Session Chair of: "Managing the Charge/Discharge Operations of the Electric Vehicle: The Role of the Smart Grid", PHEV Panel at IEEE Transmission & Distribution Conference and Exposition, New Orleans, LOUISIANA, 21 April 2010.

20. Panel Session Chair of: "Advances in Solar Photovoltaic Technology", *IEEE Conference on Innovative Smart Grid Technologies*, Washington D.C., 17-19 January 2012.

21. Panel Session Chair of: "Moving the Smart Grid Forward: Perspectives for R&D", *IEEE Conference on Innovative Smart Grid Technologies*, Berlin, GERMANY, 14-17 October 2012.

22. Panel Session Chair of: "Sharing Experience Internationally", *IEEE Conference on Innovative Smart Grid Technologies*, Washington D.C., 26 February 2013.

23. Panel Session Chair of: "Smart Grid Deployment: China/USA/Indonesia", *Asian Utility Week,* Bangkok, THILAND, 9-10 June 2015.

24. Technical Session Chair of: "Renewable Energy Integration", 12th *IEEE Indicon 2015*, New Delhi, INDIA, 17-20 December, 2015,

CONFERENCE ADVISORY PANEL

International Conference on Advances in Power System Control, Operations & Management, Member, International Advisory Committee, HONG KONG, 7-10 December 1993.

International Conference on Environment and Demand Side Management, Member, International Advisory Committee, Kuala Lumpur, MALAYSIA, November 1995.

International Symposium on Advances in Alternative & Renewable Energy, Member, International Advisory Committee, Johor Bahru, MALAYSIA, 22-24 July 1997.

Regional Conference on Energy and Environment, Member, International Advisory Committee, Kuala Lumpur, MALAYSIA, 15-16 February 2000.

International Conference on Electrical and Computer Engineering, Member, International Advisory Committee, Dhaka, BANGLADESH, January 2001, December 2002.

MEPCON – 2001, Member, International Advisory Committee, Cairo, EGYPT, December 2001.

MEDPOWER – 2002, Member, International Advisory Committee, Athens, GREECE, November 2002.

7th International Conference on Computer and Information Technology, Member, International Advisory Committee, Dhaka, BANGLADESH, December 2004.

International Conference on Electrical Machines, Drives and Power Systems - ELMA'05, Member, International Steering Committee, Sofia, BULGARIA, September 2005.

First IEEE International Workshop on Critical Infrastructure Protection, Member, Program Committee, Darmstadt, GERMANY, November 2005.

International Conference on Mechanical Engineering, Member, International Advisory Committee, Dhaka, BANGLADESH, December 2005.

First International Power and Energy Conference PECon 2006, Member, International Advisory Board, Kuala Lumpur, MALAYSIA, 28-29 November 2006.

ITCIP 2007 - Information Technology for Critical Infrastructure Protection Conference, Member, International Advisory Board, Bonn, GERMANY, 4-5 September 2007.

ICEI 2007 – International Conference on Engineering and ICT, International Advisory Panel, Melaka, MALAYSIA, 27-28 November 2007.

International Conference on Power System Analysis, Control and Optimization, International Advisory Board, Andhra University, INDIA, 13-15 March 2008.

International Disaster and Risk Conference, IDRC Davos 2008, Davos, SWITZERLAND, 25-29 August 2008.

International Conference on the Developments in Renewable Energy Technology (ICDRET '09), Dhaka, BANGLADESH, 17-19 December 2009.

International Conference on the Developments in Renewable Energy Technology (ICDRET '12), Dhaka, BANGLADESH, 5-7 January 2012.

International Conference and Utility Exhibition 2014 on Green Energy for Sustainable Development (ICUE 2014), Pattaya City, THAILAND, 19-21 March 2014.

Brunei International Conference on Engineering and Technology, (BICET 2014), BRUNEI DARUSSALAM, November 2014.

Sixth IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC 2014), Hong Kong, 7-10 December 2014.

Tenth Advances in Power System Control, Operation and Management International Conference (APSCOM 2015), Hong Kong, 8-11 November 2015.

Sixth International Disaster and Risk Conference IDRC 2016, Davos, SWITZERLAND, 28 August - 01 September, 2016

18th IEEE Middle-East Power Systems Conference (MEPCON), Helwan University, Cairo, EGYPT, 27-29 December 2016.

EXTERNAL EXAMINER (Ph.D.)

Department of Electrical Engineering, *Jadavpur University*, Kolkata, INDIA, 2005.

Department of Electrical Engineering, *Aligarh Muslim University*, Aligarh, UP, INDIA, 2006.

School of Electrical and Electronic Engineering, *Nanyang Technological University*, SINGAPORE, 2004 to 2006, 2007 to 2008.

Department of Electrical Engineering, *University of Malaya*, Kuala Lumpur, MALAYSIA, 2014.

Department of Electrical Engineering, *Indian Institute of Technology*, New Delhi, INDIA, 2014.

Department of Electrical Engineering, *Indian Institute of Technology*, Bombay, INDIA, 2014.

Faculty of Engineering, *University Putra Malaysia*, Selangor, MALAYSIA, 2015.

Faculty of Engineering, *University of Malaya*, Kuala Lumpur, MALAYSIA, 2016 to 2018.

GUEST PROFESSOR

School of Electrical Engineering, Southeast University, Nanjing, CHINA, 2009 to present.

VISITING PROFESSOR

Faculty of Electrical Engineering, *Kokej Universiti Teknikal Kebangsaan Malaysia,* MALAYSIA, 2004.

EXTERNAL PROGRAM, PROPOSAL AND DISSERTATION REVIEW

1. National Science Foundation, 1982 to present.
2. U.S. Department of Energy, 1985 to present.
3. University Grants Committee, Hong Kong, 1995 to present.
4. Center for Innovative Technology, Virginia, 1987 to 1991.
5. Murdoch University, Australia, 1998 to present.
6. Asian Institute of Technology, Bangkok, Thailand, 1998 to present.

7. Nanyang Technological University, Singapore, 2001 to present.
8. Civilian Research and Development Foundation, Virginia, 1999 to present.
9. Ministry of Research and Innovation, Government of Ontario, Canada, 2007 to 2011.
10. National Academy of Sciences, USAID/NSF PEER Program, 2014 to 2016.
11. University of Auckland, New Zealand, 2016 to present.

SHORT COURSES, WORKSHOPS, TUTORIALS

1. "Wind Energy", Workshop presented at the ***International Symposium-Workshop on Renewable Energy Sources***, *Lahore*, *PAKISTAN*, March 1983. I was the workshop leader.

2. "Computer Techniques for Power System Operation", Short course organized by the ***Continuing Education Center, Virginia Tech***, October 1983. I was one of the three instructors.

3. "Advanced Topics on Power System Planning", Short course presented at the ***Bangladesh University of Engineering & Technology***, Dhaka, *BANGLADESH*, March 1984.

4. Energy Management - II", Short course organized by the ***Continuing Education Center, Virginia Tech***, April 1984, 1985 and 1986. I was one of the four instructors.

5. "Interactive Design Analysis for Stand-Alone Photovoltaic Systems", workshop presented at the ***Research Institute of Computer System Engineering***, The Ministry of Electronics Industry, Beijing, *CHINA*, August 16, 1986.

6. "Training on Power Systems Operation and Planning", Four-Week workshop presented at Virginia Tech. Workshop organized by ***the Continuing Education Center, Virginia Tech***, Blacksburg, *VIRGINIA*, August 1991.

7. "Short Term Load Forecasting Workshop", organized by ***Electric Power Research Institute***, Hilton Head Island, *SOUTH CAROLINA*, 1 March 1995. I was one of four instructors.

8. "Energy Management Systems", one-day workshop presented at the ***University of Technology, Malaysia*** in Johor Bahru, *MALAYSIA*, 28 November 1995.

9. "Innovations in Power Engineering Education", Workshop Organizer and General Chair, ***National Science Foundation***, Arlington, *VIRGINIA*, 30 October - 1 November 1997.

10. "Vision-21: Environmental Electric Energy Opportunities for the 21st. Century, Workshop Organizer and General Chair, ***National Science Foundation***, Crystal City, *VIRGINIA*, 10-12 April 1998.

11. "Innovations in Power Engineering Education and Research", Workshop Organizer and General Chair, ***National Science Foundation***, Arlington, *VIRGINIA*, 12-13 April 1999.

12. "IEEE Web Education Workshop", Workshop Organizer and General Chair, Sponsored by the ***Institute of Electrical & Electronic Engineers***, Rosslyn, *VIRGINIA*, December 1999.

13. "IEEE Web Education Workshop - II", Workshop Organizer and General Chair, Sponsored by the ***Institute of Electrical & Electronic Engineers***, Alexandria, *VIRGINIA*, April 2001.

14. "Engineering and Management Efficiency Improvements in Electric Power Distribution Networks", workshop organized for **National Electric Power Authority of Nigeria**, Alexandria, *VIRGINIA*, April 2005.
15. "Training in Engineering and Management Efficiency Improvements in Electric Power Distribution Networks", workshop organized for the **Electricity Company of Ghana**, Arlington, *VIRGINIA*, November 2006.
16. "High Voltage Electric Power Distribution Systems", workshop organized for the **Electricity Company of Ghana**, Arlington, *VIRGINIA*, June 2007.
17. "U.S.-China Workshop: Identification of Challenges and Opportunities for Large-Scale Deployment of the Smart Grid", **U.S. National Science Foundation**, Arlington, *VIRGINIA*, February 2013.
18. "IT Applications in the Smart Grid", sole presenter, one-week workshop organized by the **Provincial Electricity Authority,** *THAILAND*, May 2012.
19. "Smart Grid and Home Energy Management Technology Software and Applications", lead presenter, one-week workshop organized for faculty and engineers from **Yildiz Technical University (Turkey)**, Arlington, *VIRGINIA*, September 2012.
20. Short course on "Smart Grid Technology, Standards and Applications", **UMPEDAC**, **University of Malaya**, Kuala Lumpur, *MALAYSIA*, December 2013.
21. "US-China Workshop: Identification of Challenges and Opportunities for Large-Scale Deployment of the Smart Grid", **U.S. National Science Foundation**, Nanjing, *CHINA*, May 2014.
22. Tutorial on "Integration of Demand Response with Renewable Energy for Efficient Power System Operation" **12th IEEE Indicon Conference**, New Delhi, *INDIA*, December 2015.

GRADUATE ADVISING (Chair of Thesis/Dissertation Committee)

Supervised 20 Ph.D. and 32 M.S. thesis students to completion. Currently supervising 13 Ph.D. and 3 M.S. students.

List of Ph.D. Students (graduated) and Topics

1. G. Sheble, "Unit Commitment for Operations", Ph.D., Co-chair, March 1985.
2. R. Bhatnagar, "Dynamic Dispatch of Direct Load Control", Ph.D., June 1985.
3. M.A. Khallat, "A Methodology for Evaluating PV-Fuel Cell Hybrid Systems", Ph.D., November 1986.
4. B. H. Chowdhury, "Irradiance Forecasting and Dispatching Central Station Photovoltaic Power Plants", Ph.D., August 1987.
5. M.F. Baba, "Intelligent and Integrated Load Management System", Ph.D., August 1987.

6. I. Moghram, "Knowledge-Based and Statistical Load Forecast Model Development and Analysis", December 1989.
7. G. Shrestha, "Formulation and Analysis of a Probabilistic Uncertainty Evaluation Technique", Ph.D., March 1990.
8. S. Lahouar, "A Context-Based Data Sanity Checking Algorithm and Its Implementation", Ph.D., December 1991.
9. Rinaldy, "A Technique to Incorporate the Impacts of DSM on Expansion Planning", Ph.D., August 1992.
10. M. Bouzguenda, "A Methodology to Assess the Interactions of Renewable Energy Systems with Fluctuating Loads", Ph.D., September 1992.
11. A. Osareh, "A Decision Making Tool for Evaluating Uncertainties in Electric Power System Planning", Ph.D., October 1994.
12. M.A. Choudhry, "A Methodology for Evaluating Energy Efficient Lighting Technologies for Their Performance, Power Quality and Environment Impacts", Ph.D., February 1995.
13. Arnulfo de Castro, "A Technique for Multi-Attribute Utility Expansion Planning Under Uncertainty: with focus on Incorporating Environmental Factors into the Planning Process", Ph.D., December 1995.
14. Irislav Drezga, "A Generalized ANN-Based Model for Short-Term Load Forecasting", Ph.D., December 1996.
15. K. Ro, "Two-Loop Controller for Maximizing Performance of a Grid-Connected Photovoltaic-Fuel Cell Hybrid Power Plant", Ph.D., April 1997.
16. Jiuping Pan, "MADM Framework for Strategic Resource Planning of Electric Utilities". Ph.D., December 1999.
17. Noor Maricar, "Efficient Resource Development in Electric Utility Planning Under Uncertainty", Ph.D., August 2004.
18. Manisa Pipattanasomporn, "A Study of Remote Area Internet Access with Embedded Power Generation", Ph.D., December 2004.
19. Isaac Lynnwood Flory IV, "High-Intensity Discharge Industrial Lighting Design Strategies for the Minimization of Energy Usage and Life-Cycle Cost", Ph.D., August 2008.
20. Shengnan Shao, "An Approach to Demand Response for Alleviating Power System Stress Conditions due to Electric Vehicle Penetration", Ph.D., October 2011.
21. Warodom Khamphanchai, "An Agent-based Platform for Demand Response Implementation in Smart Buildings", Ph.D. March 2016.
22. Hamideh Bitaraf, "Mitigating Impacts of High Wind Energy Penetration through Energy Storage and Demand Response", Ph.D., March 2016.

23. Himanshu Jain, "Dynamic Simulation of Power Systems using Three Phase Integrated Transmission and Distribution System Models: Case Study Comparisons with Traditional Analysis Methods", Ph.D., Co-chair, November 2016.
24. Desong Bian, "An Expert-based Approach for Demand Curtailment Allocation Subject to Communications and Cyber Security Limitations ", Ph.D., December 2016.
25. Avijit Saha, "Development of a Software Platform with Distributed Learning Algorithms for Building Energy Efficiency and Demand Response Applications", Ph.D., December 2016.
26. Shibani Ghosh, "A Real-time Management of Distribution Voltage Fluctuations due to High Solar Photovoltaic (PV) Penetrations", Ph.D., December 2016.

List of M.S. Students and Topics

1. R. Bhatnagar, "Design & Implementation of a Microprocessor-Based Demand Controller", M.S., May 1982.
2. B. Chowdhury, "Application of Wind in Large Scale Electric Power Production", M.S., June 1983.
3. J. Githinji, "Elements of Load Forecasting and Generation Planning", M.S., June 1983.
4. S. Ghosh, "Real-Time Data Acquisition for Load Management", M.S., October 1985.
5. H. Y. Marathe, "A Hierarchical Model for PV System Performance Analysis", M.S., November 1985.
6. S. Roongsita, "Simulation and Study of Harmonic Interference in Power Line Communications", M.S., November 1985.
7. I. Coulibaly, "Microcomputer Based Optimization Model for Photovoltaic System Performance Analysis", M.S., March 1986.
8. J.C. Samagond, "A Methodology for Decision Making Applied to New and Renewable Energy Technologies in India", M.S., July 1987.
9. S. Toomhirun, "Study of Residential Demand for Electricity as Functions of Load Control Schemes and Dwelling Characteristics", M.S., November 1987.
10. S. Essid, "An Interactive Microcomputer Model for Solar Radiation and Photovoltaic Output Comparison", M.S., December 1987.
11. M. Bouzguenda, "Study of the Combined Cycle Power Plant as a Generation Expansion Alternative", M.S., December 1987.
12. A. Russell, "An Analysis of Non-Utility Generation Alternatives", M.S., April 1990.
13. K. Russell, "Design and Analysis of Shipboard Electric Power Distribution Systems", M.S., September 1990.
14. P. Turner, "A System Engineering Approach to Power Systems in Remote Regions", M.E., November 1990.

15. O. Hazim, "A Generalized Rule-Based Short-Term Load Forecasting Technique", M.S., December 1991.
16. B. Kroposki, "A Methodology to Study Photovoltaics and Storage Interaction", M.S., April 1992.
17. J. Jockell, "A Methodology to Evaluate the Performance of Photovoltaics and Storage for Managing Building Loads", M.S., August 1992.
18. Jayendar Rajagopalan, "Symbolic and Connectionist Machine Learning Techniques for Short-term Electric Load Forecasting", M.S., December 1993.
19. Y. Teklu, "A methodology to evaluate uncertainties in planning small-scale power systems", M.S., July 1994.
20. Concha Callwood, "The Role of the Legislature and Electric Utilities in Effecting Global Environmental Goals", M.S. Thesis, March 1996.
21. Joseph Wolete, "An Interactive Menu-Driven Design Tool for Stand-Alone Photovoltaic Systems", M.S., January 1998.
22. Andhika Prastawa, "An Analysis of the Financial Incentives Impact on the Utility Demand-Side Management Programs", M.S., July 1998.
23. S. Mahadevan, "A Learning Object Model for Electronic Learning", M.S., June 2002.
24. V. Pushpagiri, "A Java-based Smart Object Model for use in Digital Learning Environments", M.S., June 2003.
25. Seema Mitra, "Software Agents for DLNET Content Review: Study and Experimentation", M.S., September 2006.
26. Irfan Waseem, "Impacts of Distributed Generation on the Residential Distribution Network Operation", M.S., December 2008.
27. Hassan Feroze, "Multi-Agent Systems in Microgrids: Design and Implementation", M.S., August 2009.
28. Sai Krovvidi, "Competitive Microgrid Electricity Market Design", M.S., May 2010.
29. Fakeha Sehar, "Impact of Ice Storage on Electrical Energy Consumption in Large and Medium-sized Office Buildings in Different Climate Zones", M.S., September 2011.
30. Terry Bruno Jesudhason Maria Therasammal, "Analysis of the Impact of Solar Thermal Water Heaters on the Electrical Distribution Load", M.S., September 2011.
31. Mehdi Hasan, "Aggregator-Assisted Residential Participation in Demand Response Programs", M.S., May 2012.
32. M. Moshiur Rahman, "Design and Implementation of a Web-based Home Energy Management System for Demand Response Applications", M.S., July 2013.
33. Kruthika Rathinavel, "Design and Implementation of a Secure Web Platform for a Building Energy Management Open Source Software", M.S., July 2015.

BOOKS, MONOGRAPHS

1. Renewable and Advanced Energy Systems, Saifur Rahman, unpublished manuscript in use at Virginia Tech and elsewhere.

RESEARCH ACTIVITIES

Research Contracts and Grants

1. "Modeling and Analysis of Power Processing Devices", sponsored by **NASA/TRW**, for $27,000 (March 1980 - December 1980), PI - F. C. Lee, Co-PI - S. Rahman.
2. "Inductor/Transformer and Half-Bridge Converter Design," sponsored by **Naval Avionics Center, U.S. Navy,** for $20,000 (1980 - 1981), PI - F. C. Lee, Co-PI - S. Rahman.
3. "An Energy Management Project: Industrial development and Productivity Research", sponsored by the **Virginia Center for Coal and Energy Research**, for $54,659 (July 1980 - June 1982), PI - L. L. Grigsby, Co-PI - S. Rahman.
4. "Impact of Dispersed Generation and Storage on the Operation and Generation Expansion Plans of CP&L", sponsored by the **Carolina Power and Light Company**, for $30,928 (July 1981 - June 1982), PI - S. Rahman.
5. "A Methodology for the Assessment of Small-Scale Sources of Electric Energy in Bangladesh", sponsored by **National Science Foundation**, for $9,902 (July 1982 - June 1984), PI - S. Rahman.
6. "Impact of Energy Management on the Consumers of Electric Energy in Virginia", sponsored by the **Virginia Center for Coal and Energy Research**, for $104,779 (July 1982 - June 1984), PI - S. Rahman, Co-PI's - L. L. Grigsby and F. C. Brockhurst.
7. "Electrical Energy from Renewable Resources in Virginia", sponsored by the **Virginia Center for Coal and Energy Research**, for $36,535 (July 1982 - June 1984), PI - S. Rahman.
8. "Personal Computer Based Data Acquisition and Display System", sponsored by the **Old Dominion Electric Cooperative, Virginia**, for $11,274 (February 1984 - May 1985), PI - S. Rahman, Co-PI - C. E. Nunnally.
9. "Capacity and Energy Value for Photovoltaic Systems in the CP&L Service Area", sponsored by the **Carolina Power and Light Company**, for $35,912 (May 1984 - July 1985), PI - S. Rahman
10. "Design and Implementation of a Short Term Load Forecasting System", sponsored by the **Old Dominion Electric Cooperative, Virginia**, for $101,403 (December 1984 - February 1986), PI - S. Rahman, Co-PI's - A. A. Beex and C. E. Nunnally.
11. "Microcomputer Based Load Management Strategies for Wholesale User's of Electricity in Virginia", sponsored by the **Virginia Center for Coal and Energy Research**, for $74,391 (July 1984 - June 1986), PI - S. Rahman, Co-PI's - J. De La Ree and R. Bhatnagar.
12. "International Conference on Energy Development Planning in Dhaka Bangladesh", November 1985, sponsored by the **National Science Foundation**, for $19,500 (February 1985 - July 1986), PI - S. Rahman.

13. "Impact of Cogeneration on Industrial Customers and Electric Utilities in Virginia", sponsored by the **Virginia Center for Coal and Energy Research,** for $51,882 (July 1984 - June 1986), PI - S. Rahman.

14. "Converter Design Optimization", sponsored by **IBM**, for $3,300 (June 1985 - September 1986), PI - F. C. Lee, Co-PI - S. Rahman.

15. "Load Forecasting System Enhancement", sponsored by the **Old Dominion Electric Cooperative, Virginia**, for $6,915 (April 1986 - December 1986), PI - S. Rahman.

16. "Analysis of Renewable Energy-Fuel Cell Hybrid Electric Energy Supply System", sponsored by the **Virginia Center for Coal and Energy Research**, for $31,291 (July 1986 - June 1987), PI - S. Rahman, Co-PI - K-S. Tam.

17. "Solar Data Collection & Analysis for the VISTA Facility", sponsored by **Virginia Power Company**, for $66,913 (October 1986 - December 1987), PI - S. Rahman.

18. "Quantification of Interrelationships among Electricity Supply System Planning Criteria", sponsored by the **Martin Marietta Energy Systems, Inc**., for $51,694 (June 1986 - March 1988), PI - S. Rahman.

19. "Design and Simulation of Intelligent Energy Management Systems", sponsored by the **Virginia Center for Coal and Energy Research,** for $63,654 (July 1986 - June 1988), PI - S. Rahman.

20. "A Study of the Economic Impact of Operating Photovoltaic Systems in the Electric Utility Grid", sponsored by the **Sandia National Laboratories**, for $14,996 (April 1988 - January 1989), PI - S. Rahman.

21. "Forecasting and Analysis of Photovoltaic Power and an Integrated Load Management Simulator", sponsored by the **Center for Innovative Technology,** for $48,151, (February 1988 - May 1989), PI - S. Rahman.

22. "Forecasting and Analysis of Photovoltaic Power and an Integrated Load Management Simulator - Part I, Solar Data Collection and Analysis for the VISTA Facility", sponsored by **Virginia Power Compan***y*, for $124,780 (January 1988 - December 1989), PI - S. Rahman.

23. "An Expert System Based Energy/Demand Conservation Model for Bulk Electricity Consumers", sponsored by the **Virginia Center for Coal and Energy Research**, for $45,785 (July 1988 - June 1990), PI - S. Rahman.

24. "Forecasting and Analysis of Photovoltaic Power and an Integrated Load Management Simulator - Phase II", sponsored by the **Center for Innovative Technology,** for $45,691 (September 1989 - October 1990), PI - S. Rahman.

25. "Performance Analysis of the VISTA Photovoltaic Facility", sponsored by **Virginia Power**, for $35,000 (January - December 1990), PI - S. Rahman.

26. "A New Look at the Electric Load/Generation Forecasting Needs of the Future", sponsored by the **National Science Foundation**, for $37,773 (March 1989 - February 1991), PI - S. Rahman.

27. "A Context Based Data Sanity Checking Algorithm and Its Implementation", co-sponsored by the **Center for Innovative Technology**, for $40,000 (August 1990 - October 1991), PI - S. Rahman.

28. "AI in Electric Power Systems - A Survey of the Japanese Industry", sponsored by the **National Science Foundation**, for $8,526 (November 1990 - October 1991), PI - S. Rahman.

29. "A Context Based Data Sanity Checking Algorithm and Its Implementation", co-sponsored by the **American Public Power Association/City of Martinsville,** for $25,000 (November 1990 - November 1991), PI - S. Rahman.

30. "Automated Data Acquisition System for Energy Efficiency Analysis", sponsored by the **Virginia Center for Coal and Energy Research**, for $31,860 (July 1990 - June 1992), PI - S. Rahman.

31. "An Inherently Updatable On-line Load Forecasting Technique", sponsored by the **National Science Foundation,** for $149,804 (August 1990 - January 1993), PI - S. Rahman, Co-PI - G. Shrestha.

32. "A Study of the Economic Impact of Integrating Photovoltaics with Conventional Electric Utility Operation", sponsored by the **Sandia National Laboratories**, for $40,235 (April 1991 - April 1993), PI - S. Rahman.

33. "Techniques for Evaluating the Impact of Demand Side Management in the Japanese Electric Utility Industry", sponsored by the **National Science Foundation,** for $118,169 (September 1992 - May 1994), PI - S. Rahman.

34. "Quantification of the Impact of Environmental Factors on Electricity Generation Dispatch", sponsored by the **Virginia Center for Coal and Energy Research**, for $19,083 (July 1992 - June 1994), PI - S. Rahman.

35. "International Symposium on Electric Energy Systems, Dhaka, Bangladesh", sponsored by the **National Science Foundation**, for $22,850 (July 1993 - August 1994), PI - S. Rahman.

36. "State Agency Solar Energy Systems Monitoring and Evaluation", sponsored by the **Virginia Department of Mines, Minerals and Energy,** for $128,872 (May 1993 - January 1995), PI - S. Rahman. J. Randolph and R. Schubert.

37. "An Expert System Based Integrated Energy Management System. Award in US and Indian Currencies", sponsored by the **National Science Foundation**, for $33,690 (April 1992 - March 1995), PI - S. Rahman.

38. "Electrical Power System Monitoring and Control for Optimum Flexibility," sponsored by the **Virginia Center for Coal and Energy Research**, for $8,934 (July 1994 - June 1995), PI - S. Rahman.

39. "A Technique for Incorporating Uncertain Environmental Factors into the Electric Utility Planning Process", sponsored by **the National Science Foundation,** for $128,793 (December 1992 - December 1995), PI - S. Rahman.

40. "A Technique for Incorporating Uncertain Environmental Factors into the Electric Utility Planning Process", sponsored by the **National Science Foundation** REU Supplement, for $10,000, (December 1992 - December 1995), PI - S. Rahman.

41. "Planning Visit for Energy Efficiency Improvements in Tunisian Electric Power Industry and Opportunities for Mitigating Greenhouse Gas Emissions", sponsored by the **National Science Foundation**, for $2,200 (February 1995 - January 1996), PI - S. Rahman.

42. "Power Quality Monitoring and Harmonics Analysis", sponsored by **Virginia Center for Coal and Energy Research**, for $9,884 (July 1995 - June 1996), PI - S. Rahman.

43. "Solar Powered Car Project", sponsored by the **University of Technology, Malaysia**, for $145,533 (May - October, 1996), PI - S. Rahman.

44. "Development of a Prototype Database and Decision Support System for Management of the EM-Technology Development Program", sponsored by the **Waste Policy Institute**, for $155,064 (May - December 1996), PI - S. Rahman, L. J. Moore and T. K. Sen.

45. "An Approach to Integrated Generation and Transmission Planning Addressing Resource Utilization and Environmental Concerns", sponsored by the **National Science Foundation**, for $49,506 (August 1995 - July 1997), PI - S. Rahman.

46. "An Approach to Integrated Generation and Transmission Planning Addressing Resource Utilization and Environmental Concerns", sponsored by the **National Science Foundation**, REU Supplement for $10,000 (August 1995 - July 1997), PI - S. Rahman.

47. "Design and Study of an Algorithm to Evaluate the Cost of Power Quality and Wheeled Power Under Varying States of the Power System", sponsored by the **Tokyo Electric Power Company, Japan,** for $86,040 (July 1997 - August 1998), PI - S. Rahman.

48. "Generation and Use of Electricity and Their Impacts on the Environment", sponsored by the **National Science Foundation**, for $36,695 (July 1995 - June 1999), PI - S. Rahman.

49. "Virginia Center for Energy Technology Innovation", sponsored by the **Center for Innovative Technology, Virginia**, for $25,000 (Jul 1998 - August 1999), PI – S. Rahman.

50. "Secretariat of the US National Committee of CIGRE", sponsored by the **U.S. National Committee of CIGRE**, for $90,426 (November 1994 - October 1999), PI - Arun Phadke and Saifur Rahman.

51. "A Case Study to Identify Bottlenecks and Opportunities for Higher-Level SBIR Funding of Virginia Companies", Sponsored by **Virginia Center for Innovative Technology** (CIT), for $17,422 (July 2000 - December 2000), PI – S. Rahman.

52. "Greenhouse Gas Pollution Prevention Project in India", Sponsored by the **Louis Berger Group, Inc.,** for $38,350 (July 2000 - May 2001), PI – S. Rahman.

53. "Innovative Approaches to Providing Electric Power as a Critical Infrastructure Element for High-Technology Economic Growth in Virginia", Sponsored by **Virginia Center for Innovative Technology**, for $62,608, (September 2000 - October 2001), PI – S. Rahman.

54. "Renewable Energy and the Global Environment – A Modular, Web-Based Interdisciplinary Course for Undergraduates", Sponsored by **US Department of Energy**, for $87,702 (September 2000 - May 2002), PI – S. Rahman.

55. **"**Federal and State Technology (FAST) Partnership Program Database Development and Management", Sponsored by **U.S. Small Business Administration**, subcontract from **Virginia Center for Innovative Technology** for $25,000 per year, (October 2001 - August 2002), PI - S. Rahman.

56. "A Digital Library Network for Engineering and Technology (DLNET)", Sponsored by the U.S. **National Science Foundation**, for $605,573 (September 2000 - February 2003), PI – S. Rahman.

57. "Geothermal Heat Pumps for Energy Smart Schools in Virginia", sponsored by the **U.S. Department of Energy and Virginia Department of Minerals, Mining and Energy,** for $73,540 (October 1999 - August 2003), PI – S. Rahman.

58. "Virginia Million Roofs and PV4VA: Combining Resources for Solar Energy Education, Research and Outreach", sponsored by the **U.S. Department of Energy**, for $80,446 (May 2000 - September 2003), PI – S. Rahman.

59. "US-India Co-operative Research: Digital Library Network", Sponsored by **National Science Foundation**, for $4,410, (July 2002 - December 2003), PI – S. Rahman.

60. "Reprogramming the Virginia Tech Critical Infrastructure Modeling and Assessment Program in Northern Virginia", Sponsored by **Virginia Tech Northern Virginia Initiative**, for $225,000, (July 2001 - June 2004), PI – S. Rahman.

61. "An International Workshop on Distributed Internet Infrastructures for Education and Research", Sponsored by **National Science Foundation**, for $28,172, (August 2003 - July 2005), PI – S. Rahman.

62. "An Interactive Hydrogen Knowledge Base", Sponsored by the **U.S. Department of Energy**, for $47,628, (September 2003 - August 2005), PI – S. Rahman.

63. "US-Bangladesh Partnership to Reduce Vulnerability to Seismic Hazards", Sponsored by **Association Liaison Office for University Cooperation in Development (USAID),** for $200,000, (October 2003 - March 2006), PI – S. Rahman and F. Krimgold.

64. "Intelligent Distributed Autonomous Power Systems (IDAPS): A Framework for a Resilient and Environmentally-Friendly Microgrid", PI - S. Rahman, co-PI – M. Pipattanasomporn, Start date: 9/15/2007, End date: 8/31/2008, Funding agency: **National Science Foundation**, Grant amount: $59,999 (Grant # ECCS-0742832).

65. "NSF Workshop on Advanced Power Conditioning for Alternate Energy Systems", PI – Jason Lai, co-PI – Saifur Rahman, Start date: 7/15/2008, End date: 1/13/2009, Funding agency: **National Science Foundation**, Grant amount: $70,000 (Grant # ECCS-0804062).

66. "Modeling and Simulation of a DG-Integrated Intelligent Microgrid", PI - S. Rahman, co-PI – M. Pipattanasomporn, Start date: 5/10/2008, End date: 6/30/2009, Funding agency: **U.S. Department of Defense (SERDP program)**, Grant amount: $116,160.

67. "Feasibility and Guidelines for the Development of Microgrids in Campus Type Facilities", PI - S. Rahman, co-PI – M. Pipattanasomporn, Start date: 9/15/2009, End date: 9/15/2012, Funding agency: **U.S. Army Corps of Engineers (DOD SERDP program),** Grant amount: $400,703.

68. "Bi-Level Demand-Sensitive LED Lighting Street Systems", PI – S. Rahman, co-PI – M. Pipattanasomporn, Start date: 5/10/2010, End date: 5/09/2013, Funding agency: **U.S. Department of Defense (ESTCP program)**, Grant amount: $566,057.

69. "A Test Bed for Analyzing the Security and Resilience of the DG-Integrated Electric Power Distribution Network", PI - M. Pipattanasomporn, co-PI – Saifur Rahman, Start date: 9/15/2009, End date: 8/31/2013, Funding agency: **National Science Foundation**, Grant amount: $304,426 (Grant # ECCS-0901410).

70. "US-China Workshop: Identification of Challenges and Opportunities for Large-Scale Deployment of the Smart Grid", PI – S. Rahman, Funding agency: **National Science Foundation**, Grant no. 11-42661, Grant amount $36,500, (July 2012 - June 2014).

71. "Smart Grid Information Clearinghouse" PI - S. Rahman, co-PI – M. Pipattanasomporn, Start date: 9/1/2009, End date: 8/31/2014, funding agency: **U.S. Department of Energy**, Grant amount: $1,514,428.

72. "Partnership for Innovation: Role of the Smart Grid in Alleviating Electrical Power System Stress Conditions Through Demand Response", PI – S. Rahman, co-PIs – J. Bohland and M. Pipattanasomporn, Funding agency: **National Science Foundation**, Grant no. 11-14314, Grant amount $699,969, (September 2011 - August 2014).

73. "US-Egypt Cooperative Research: Managing Grid Integration of Large-Scale Wind Power Parks using Energy Storage Technology and Demand Response ", PI – S. Rahman, Funding agency: **National Science Foundation,** Grant no. 11-04023, Grant amount $169,899, (August 2011 - July 2015).

74. "VOLTTRON Symposium", PI – S. Rahman, sponsored by Battelle Pacific Northwest National Laboratory, Grant amount $5,000, (May - August 2015).

75. "Qatar Power System Transition to a Smart Grid", Sponsored by Qatar Foundation/Qatar University, PI – S. Rahman, Grant amount $211,537, (January 2014 - October 2016).

76. "Building-Grid Integration Research and Development Innovators Program (BIRD IP) fellowship - Xiangyu", PI – S. Rahman, Sponsored by **U.S. Department of Energy,** Grant Amount $45,000, (January - December 2016).

77. "Building-Grid Integration Research and Development Innovators Program (BIRD IP) fellowship - Rajendra", PI – S. Rahman, Sponsored by **U.S. Department of Energy,** Grant Amount $45,000, (January - December 2016).

78. "Building Energy Management Open Source Software Development (BEMOSS)", PI – S. Rahman, co-PI – M. Pipattanasomporn, Sponsored by **U.S. Department of Energy,** Grant amount $2,055,656, (November 2013 - January 2017).

79. "NRT-DESE: UrbComp: Data Science for Modeling, Understanding and Advancing Urban Populations", PI - Naren Ramakrishnan, co-PI – S. Rahman and others, Funding agency:

National Science Foundation, Grant no. DGE 154362, Grant amount $2,999,328, my share $302,545, (September 2015 - August 2020).

Gifts, Grants, Donations

1. January 1983, *Virginia Tech Supplemental Grants Program,*
   "Supplemental funding for Energy Sources and Systems Simulator",
   Grant Amount - *$1,000*
2. Summer 1983, *Virginia Tech Summer Faculty Fellowship,*
   "Microcomputer Based Instructional Aid for Energy Sources and Systems Simulator",
   Grant Amount - *$6,500*
3. July 1983, *Virginia Tech Supplemental Grants Program,*
   "Supplemental Funding for Alternative Energy Systems Research Laboratory",
   Grant Amount - *$895*
4. November 1984, *National Science Foundation,*
   "Travel support to attend the IEEE International Conference on Computers, Systems and Signal Processing in Bangalore, India",
   Grant Amount - *$1,691*
5. February 1985, *National Science Foundation,*
   "Travel support to prepare joint research proposals with scientists at the Indian Institute of Science",
   Grant Amount - *$1,698*
6. June 1986, *General Electric Company,*
   "Energy Management System Simulator",
   Fair market value - *$18,500*
7. August 1986, *Virginia Tech Supplemental Grants Program,*
   "Supplemental Funding for International Travel",
   Grant Amount - *$750*
8. June 1987, *American Society for Engineering Education,*
   "Support to attend the IBM Workshop on Knowledge Based Systems, New York".
   Grant Amount - *$1,000*
9. July 1988, *National Science Foundation,*
   "Travel support to attend the Symposium on Expert System Application to Power Systems, Sweden",
   Grant Amount - *$728*
10. October 1989, *National Science Foundation,*
    "Travel support to attend the IEEE Tencon in Bombay, India."
    Grant Amount - *$1,465*

11. November 1989, *Virginia Tech Supplemental Grants Program,*
"Supplemental Funding for Travel to India".
Grant amount - *$650*

12. March 1991, *Virginia Tech Supplemental Grants Program*,
"Supplemental Funding for Travel to Japan".
Grant Amount - *$900*

13. September 1993, *Virginia Tech Supplemental Grants Program,*
"Supplemental Funding for Travel to Hong Kong".
Grant Amount - *$800*

14. December 1994, *Jet Propulsion Laboratory*, CA
"Processor Terminal"
Grant Amount - *$4,995*

15. December 1994, *Jet Propulsion Laboratory, CA*
"Digital Monitor"
Grant Amount - *$3,095*

16. December 1994, *Jet Propulsion Laboratory, CA*
"Electric Power Distribution System Simulator"
Grant Amount - *$26,000*

17. November 1995, *Virginia Tech Supplemental Grants Program*
"Supplemental Funding for Travel to India and Malaysia"
Grant Amount - *$850*

18. June 1996, *United States Information Service, Sana'a, Republic of Yemen,*
"Research and Lecture Visit to Yemen"
Grant Amount - *$4,380*

19. November 2003, *SUN Microsystems, Cary, NC*
"Sun Servers and related equipment"
Grant Amount - *$61,700*

20. October 2005, *U.S. Department of State International Information Programs,*
"US Speaker and Specialist Grant"
Grant Amount - *$12,500*

PUBLICATIONS

Book Chapters and Articles

1. "A Methodology for Small Scale Energy Technology and System Evaluation", S. Rahman in T. N. Veziroglu (ed.), *Energy Conservation/Management/Education*, Ann Arbor Science Publishers, Michigan, 1982, pp. 319-334.

2. "Power System Problems Associated with Low-Head Hydroelectric Units", S.Rahman in T. N. Veziroglu, (ed.), *Alternative Energy Sources*, III, Vol. 4, Hemisphere Publishing Co., New York, 1983, pp. 363-381.

3. "A Microcomputer Based Planning Tool for Wind Energy Development", S. Rahman in T.N. Veziroglu, (ed.), *Alternative Energy Sources*, VI: Wind/Ocean/Nuclear/Hydrogen, Hemisphere Publishing Co., New York, 1985, pp. 1-12.
4. (Invited) "An Expert System Based Load Forecasting Technique", S. Rahman, book chapter in T. S. Dillon and M. A. Laughton (eds.), *Expert System Applications in Power Systems,* Prentice-Hall, 1990, Chapter 8, pp. 253-284.
5. (Invited) "Air Pollution Control", S. Rahman, A. deCastro and Concha Callwood, *Encyclopedia of Electrical and Electronics Engineering*, John Wiley & Sons, John G. Webster, Editor, vol. Energy Conversion, Article # 3010, 20 pages, February 1999.
6. (Invited) "Advanced Energy Technologies", S. Rahman, chapter in the *Electric Power Engineering Handbook, CRC Press*, Leo Grigsby, Editor-in-Chief, 2000, pp. 1-7 to 1-13.
7. (Invited) "Renewable Energy Sources", S. Rahman, article in McGraw-Hill Year Book of Science & Technology 2004, Mark D. Licker, Publisher, pp. 284-286.
8. (Invited) "WiMAX Architecture, Planning and Business Model", Abdulrahman Yarali and S. Rahman, book chapter in *WiMAX Network Planning and Optimization,* Edited by Yan Zhang (Simula Research Laboratory, Norway), April 2009.

Contributed Papers in Refereed Journals

1. "Power Systems Operations Scheduling Using Separable Programming", S. Rahman, the *Journal of Electric Power Systems Research*, vol. 2, no. 4, 1979, pp. 293-303.
2. "Evaluation Methodology for Electric Energy from Renewable Resources", S. Rahman, the *Journal of Solar Sciences*, vol. 1, no. 2, 1982, pp. 105-112.
3. "Computer Simulations of Optimum Boost and Buck/Boost Converters", S. Rahman and F. C. Lee, IEEE Trans. on Aerospace and Electronics Systems, vol. AES-18, no. 5, September 1982, pp. 598-608.
4. "Formulation for a Fixed Charge Separable Nonlinear Production Planning Problem", S. Rahman and J. A. Nachlas, *International Journal of Production Research*, vol. 21, no. 5, 1983, pp. 713-722.
5. "Evaluation of WTG Output Using Wind Data", S. Rahman, *IMACS Transactions on Scientific Computation*, *vol. IV*, *Energy Modeling and Simulation*, North Holland Publishing Co., Amsterdam, 1983, pp. 159-163.
6. "A Hierarchical Approach to Electric Utility Planning", S. Rahman and L. C. Frair, *International Journal of Energy Research*, vol. 8, no. 2, 1984, pp. 185-196.
7. "Software Development for a Microprocessor-Based Power Demand Controller", R. Bhatnagar and S. Rahman, *Jour. of the Institute of Energy*, UK., vol. 57, no. 431, June 1984, pp. 300-305.
8. "Effects of Clusters on the Electric Power from Windfarms", S. Rahman and B. H. Chowdhury, *IEEE Trans., Power Apparatus and Systems*, vol. PAS-103, no. 8, August 1984, pp. 2158-2165.

9. "Development, Design and Implementation of a Microprocessor Based Power Demand Controller", R. Bhatnagar and S. Rahman, *Journal of Energy Engineering*, vol. 82, no. 2, 1985, pp. 20-37.

10. "Direct Load Control: Relationships Between Electric Utility Experiences/Assessments and System Characteristics", R. Bhatnagar and S. Rahman, *IEEE Transactions on Power Apparatus and Systems*, vol. PAS-104, no. 8, August 1985, pp. 2168-2175.

11. "Hierarchical Electric Energy System Planning Using Micro-Mini Computers", S. Rahman, *Journal of the Institute of Energy*, UK., vol. 58, no. 437, December 1985, pp. 213-216.

12. "Photovoltaics - Fuel Cells Hybrid Electric Energy System", Saifur Rahman, P*hotovoltaics International*, vol. IV, no. 5, August 1986, pp. 12-13.

13. "A Probabilistic Approach to Photovoltaic Generator Performance Prediction", M. A. Khallat and S. Rahman, *IEEE Transactions on Energy Conversion*, vol. EC-1, no. 3, September 1986, pp. 34-40.

14. "Dispatch of Direct Load Control for Fuel Cost Minimization," R. Bhatnagar and S. Rahman, *IEEE Transactions on Power Systems*, vol. PWRS-1, no. 4, November 1986, pp. 96-102.

15. "A Microcomputer Based Analysis of Stand-Alone Photovoltaic Energy Systems", S. Rahman and I. Coulibaly, *Journal of the Institute of Energy*, U.K., vol. LX, no. 443, June 1987, pp. 95-99.

16. "Comparative Assessment of Plane-of-Array Irradiation Models", B. H. Chowdhury and S. Rahman, *Solar Energy*, vol. 39, no. 5, November 1987, pp. 391-398.

17. "System Performance Improvement Provided by a Power Conditioning Subsystem for Central Station Photovoltaic-Fuel Cell Power Plant", K-S. Tam and S. Rahman, *IEEE Trans. on Energy Conversion*, vol. 3, no. 1, March 1988, pp. 64-70.

18. "A Feasibility Study of Photovoltaic-Fuel Cell Hybrid Energy System", S. Rahman and K-S. Tam, *IEEE Transactions on Energy Conversion*, vol. 3, no. 1, March 1988, pp. 50-55.

19. "An Expert System Based Algorithm for Short Term Load Forecast", S. Rahman and R. Bhatnagar, *IEEE Transactions on Power Systems*, vol. 3, no. 2, May 1988, pp. 392-399.

20. "Design Considerations and Performance Evaluation of the Virginia Integrated Solar Test Arrays", J. W. Greene, Jr. and S. Rahman, *IEEE Transactions on Energy Conversion*, vol. 3, no. 2, June 1988, pp. 254-260.

21. "Analysis of Interrelationships Between Photovoltaic Power and Battery Storage for Electric Utility Load Management", B. H. Chowdhury and S. Rahman, *IEEE Transactions on Power Systems*, vol. 3, no. 3, August 1988, pp. 900-907.

22. "A Model for Capacity Credit Evaluation of Grid-Connected Photovoltaic Systems with Fuel Cell Support", M. A. Khallat and S. Rahman, *IEEE Transactions on Power Systems*, vol. 3, no. 3, August 1988, pp. 1270-1276.

23. "Characterization of Insolation Data for Use in Photovoltaic System Analysis Models", S. Rahman, M. A. Khallat and Z. Salemeh, *Energy*, vol. 13, no. 1, 1988, pp. 63-72.

24. "Simulation of Photovoltaic Power Systems and Their Performance Prediction", S. Rahman and B. H. Chowdhury, *IEEE Transactions on Energy Conversion*, vol. 3, no. 3, September 1988, pp. 440-446.

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26. "A Discussion on the Diversity in the Applications of Photovoltaic Systems", S. Rahman, M. A. Khallat and B. Chowdhury, *IEEE Transactions on Energy Conversion*, vol. 3, no. 4, December 1988, pp. 738-746.

27. "Automated Dynamic Dispatch of Direct Load Control", R. Bhatnagar and S. Rahman, *International Journal of Energy Systems*, vol. 9, issue 2, 1989, pp. 101-105.

28. "An Integrated Load Forecasting - Load Management Simulator: Its Design and Performance", S. Rahman and M. F. Baba, *IEEE Transactions on Power Systems*, vol. 4, no. 1, February 1989, pp. 184-189.

29. "Software Design and Evaluation of a Microcomputer Based Automated Load Forecasting System", S. Rahman and M. F. Baba, *IEEE Transactions on Power Systems*, vol. 4, no. 2, May 1989, pp. 782-788.

30. "Analysis and Evaluation of Five Short-Term Load Forecasting Techniques", I. Moghram and S. Rahman, *IEEE Transactions on Power Systems*, vol. 4, no. 4, November 1989, pp. 1484-1491.

31. "Performance Evaluation of Virginia Power's Solar Test Facility", S. Rahman and F. P. Heller, *Virginia Coal and Energy Journal*, no. 2, Spring 1990, pp. 1-12.

32. "Formulation and Analysis of a Rule-Based Short Term Load Forecasting Algorithm", S. Rahman, *Proceedings of the IEEE*, vol. 78, issue 5, 1990, pp. 805-816.

33. "Analysis of the VISTA Photovoltaic Facility System Performance", S. Rahman, G. Shrestha, S. Lahour and J. Jockell, *IEEE Transactions on Energy Conversion*, vol. 5, no. 2, June 1990, pp. 245-251.

34. "Economic Impact of Integrating Photovoltaics with Conventional Electric Utility Operation", S. Rahman, *IEEE Transactions on Energy Conversion*, vol. 5, no. 3, September 1990, pp. 422-428.

35. "A Review of Recent Advances in Economic Dispatch", B. H. Chowdhury and S. Rahman, *IEEE Transactions on Power Systems*, vol. 5, no. 4, November 1990, pp. 1248-1259.

36. "A Statistical Representation of Imprecision in Expert Judgments", G. Shrestha and S. Rahman, *International Journal of Approximate Reasoning*, vol. 5, no. 1, January 1991, pp. 1-25.

37. "Analysis of Inconsistent Data in Power Planning", S. Rahman and G. Shrestha, *IEEE Transactions on Power Systems*, vol. 6, no. 1, February 1991, pp. 225-230.

38. "Energy Management Onboard the Space Station - A Rule-Based Approach", M. Bouzguenda and S. Rahman, *IEEE Transactions on Aerospace and Electronic Systems*, vol. 27, no. 2, March 1991, pp. 302-310.

39. "A Priority Vector Based Technique for Load Forecasting", S. Rahman and G. Shrestha, *IEEE Transaction on Power Systems*, vol. 6, no. 4, November 1991, pp. 1459-1465.

40. "A Generalized Knowledge Based Short Term Load Forecasting Technique," S. Rahman and O. Hazim, *IEEE Transactions on Power Systems*, vol. 8, no. 2, May 1993, pp. 508-514, and presented at the IEEE Winter Power Meeting, New York, January 1992, paper no. 92WM 124-8 PWRS.

41. "An Investigation into the Impact of Electric Vehicle Load on the Electric Utility Distribution System", S. Rahman and G. Shrestha, *IEEE Transactions on Power Delivery*, vol. 8, no. 2, April 1993, pp. 591-597, and presented at the IEEE Winter Power Meeting, New York, January 1992, paper no. 92WM 268-3 PRWD.

42. "A Technique to Incorporate New Information in Evaluating Generation Alternatives", S. Rahman and G. Shrestha, *Proc. the Power Industry Computer Application Conference*, May 1991, and *IEEE Transactions on Power Systems*, vol. 7 no. 2, May 1992, pp. 900-906.

43. "An Efficient Load Model for Analyzing Demand Side Management Impacts," S. Rahman and Rinaldy, *IEEE Transactions on Power Systems*, vol. 8, no. 3, Aug. 1993, pp. 1219-1226, and presented at the IEEE Summer Power Meeting, Seattle, WA, July 1992, paper no. 92SM 422-6 PWRS.

44. "Value Analysis of Intermittent Generation Sources from the System Operations Perspective", M. Bouzguenda and S. Rahman, *IEEE Transactions on Energy Conversion*, vol. 8, no. 3, Sep. 1993, pp. 484-490, and presented at the IEEE Summer Power Meeting, Seattle, WA, July 1992, paper no. 92SM 526-4 EC.

45. "Photovoltaics and Demand Side Management: Performance Analysis at a University Building", S. Rahman and B. Kroposki, *IEEE Transactions on Energy Conversion*, vol. 8, no. 3, Sep. 1993, pp. 491-498, and presented at the IEEE Summer Power Meeting, Seattle, WA, July 1992, paper no. 92SM 530-6 EC.

46. "Artificial Intelligence in Electric Power Systems - A Survey of Japanese Industry", S. Rahman, *IEEE Transactions on Power Systems*, vol. 8, no. 3, Aug. 1993, pp. 1211-1218, and presented at the IEEE Summer Power Meeting, Seattle, WA, July 1992, paper no. 92SM 397-0 PWRS.

47. "Identification of a Standard for Comparing Short Term Load Forecasting Technologies", S. Rahman, and I. Drezga, *Electric Power System Research Journal*, vol. 25, no. 3, 1992, pp. 149-158.

48. "Identification of Potential Areas for the Use of Expert Systems in Power System Planning", S. Rahman, and M. Lauby, *Expert Systems with Applications*: *An International Journal*, vol. 6, no. 2, 1993, pp. 203-212.

49. "A Framework for Incorporating Environmental Factors in the Utility Planning Process", S. Rahman, and A. deCastro, *IEEE Transactions on Power Systems*, vol. 9, no. 1, Feb 1994, pp. 352-358 and presented at the IEEE Winter Power Meeting, Columbus, Ohio, February 1993, paper no. 93WM 212-1 PWRS.

50. "A Distribution Engineering Workstation for Undergraduate and Graduate Education", R.P. Broadwater, S. Rahman, H. Shaalan and R. E. Lee, *IEEE Transactions on Power Systems*, vol. 8, no. 4, Nov. 1993, pp. 1385-1391 and presented at the IEEE Winter Power Meeting, Columbus, Ohio, February 1993, paper no. 93WM 124-8 PWRS.

51. "A Model to Determine the Degree of Penetration and Energy Cost of Large Scale Utility Interactive Photovoltaic Systems", S. Rahman and M. Bouzguenda, *IEEE Transactions on Energy Conversion*, vol. 9, no. 2, June 1994, pp. 224-230, and presented at the IEEE Summer Power Meeting, Vancouver, Canada, July 1993, 7p., paper no. 93SM 571-0 EC.

52. "An Expert System Integrated Protection Design with Configurable Distribution Circuits", part I, R. Broadwater, J. Thompson, S. Rahman and A. Sargent, *IEEE Transactions on Power Delivery*, vol. 9, no. 2, April 1994, and presented at the IEEE Summer Power Meeting, Vancouver, Canada, July 1993, 7 p., paper no. 93SM 408-5 PWRD.

53. "An Expert System Integrated Protection Design with Configurable Distribution Circuits", part II, J. Thompson, R. Broadwater, S. Rahman and A. Sargent, *IEEE Transactions on Power Delivery*, vol. 9, no. 2, April 1994, and presented at the IEEE Summer Power Meeting, Vancouver, Canada, July 1993, 5 p., paper no. 93SM 409-3 PWRD.

54. "Forecasting of a Load Time Series using a Fuzzy Expert System and Fuzzy Neural Networks", P.K.Dash, S. Dash. G. Ramakrishna and S. Rahman, *Engineering Intelligent Systems*, vol. 1, no. 2, September 1993, pp. 103-118.

55. "Environmental Impacts of Electricity Generation: A Global Perspective", S. Rahman and A. deCastro, *IEEE Transactions on Energy Conversion*, vol. 10, no. 2, June 1995, pp. 307-314 and presented at the IEEE Summer Meeting, San Francisco, CA, July 1994, 7 p., paper no. 94SM 367-3 EC.

56. "An Improved Neural Network Approach for Weather Sensitive Short Term Load Forecasting", P. K. Dash, A. C. Liew, S. Rahman, J. K. Satpathy, and G. Ramakrishna, *International Journal of Engineering Intelligent Systems*, vol. 2, no. 3, September 1994, pp. 185-199.

57. "Network Programming Technique for Unit Commitment", R. Zhu, C. Fu and S. Rahman, *International Journal of Electric Power and Energy Systems,* vol. 17, no. 2, 1995, pp. 123-127.

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61. "A Generic Algorithm to Select Building Lighting Technologies for Minimizing Total Harmonic Distortion", M. A. Choudhry and S. Rahman, *Energy*, vol. 20, no. 10, 1995, pp. 1027-1036.

62. "A Fuzzy Engineering Approach for Time Series Forecasting of Electric Load", P. K. Dash, S. Dash, A. C. Liew and S. Rahman, *Journal of Intelligent & Fuzzy Systems*, vol. 3, no. 3, 1995, 10p.

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65. "An Efficient Approach to Identify and Integrate DSM Impacts on Electric Utility Generation Planning", A. R. Osareh, J. Pan and S. Rahman, *Electric Power Research Journal*, vol. 36, no. 1, 1996, pp. 3-11.

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72. "Rural Electrification and Environmental Mitigation Through Renewables and Dispersed Generation", S. Rahman and C. Callwood, *Thoughts and Initiatives*, a journal of Bangladesh Development Institute, vol. 2, no. 4, September 1997, pp. 50-70. Also presented at the National Seminar on Renewable Energy for Poverty Alleviation, Dhaka, BANGLADESH, October 1997.

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Invited Journal/Magazine Papers, Editorials, and Short Notes

1. "Renewable Energy Resources - Assessing the Potential", Saifur Rahman, *Perspectives in Computing, an IBM Journal*, vol. 5, no. 2, summer 1985, pp. 32-38.
2. "Computerized Energy Management Systems - Why and How", S. Rahman and R. Bhatnagar, Special Issue, *Journal of Microcomputer Applications*, vol. 9, December 1986, pp. 261-270.
3. "Alternate Sources of Electric Energy", S. Rahman, Special Issue, IEEE Potentials, May 1988, 4p.
4. "A Methodology to Assess the Impact of Energy Conservation and Demand Side Management on Electrical System Capacity Needs", S. Rahman, *Journal of Power and Energy*, IEE Japan, May 1993, pp. 468-475.
5. "A Framework for Integrated Resource Planning in the Electric Power Sector", S. Rahman and Arnulfo de Castro, Natural Resources Forum, *A United Nations Journal*, vol. 18, no. 2, May 1994, pp. 153-160, and presented at the *UN International Seminar on System Planning in the Power Sector,* UN H*e*adquarters*,* NEW YORK, 8-12 November 1993.
6. "An Introduction to 'America's Energy Supply' by Charles P. Steinmetz", *Proceedings of the IEEE*, vol. 86, no. 4, April 1998, pp. 1-2.
7. "Power for the Internet", Guest Editorial, *IEEE Computer Applications in Power*, vol. 14, no. 4, October 2001, pp. 8-10.
8. "Green Power: What is it and Where Can We Find It?", Saifur Rahman, invited paper, *IEEE Power and Energy Magazine*, vol. 1, no.1, January/February 2003, pp. 30-37.
9. "Smart Grid Expectations: What will make it a reality?", Saifur Rahman, My View, *IEEE Power and Energy Magazine*, vol. 7, no. 5, September/October 2009, pp. 88, 84, 85.
10. Editorial, Saifur Rahman, My View, *IEEE Electrification Magazine*, vol. 1, no. 1, September 2013, pp.
11. "The Smart Grid: First Steps into its Implementation", invited article, *European CIIP Newsletter*, November 13 - January 14, vol. 7, no. 2, p. 7-9.

Invited Papers and Presentations

1. "Recent Advances in Generation Scheduling in Electric Utility Systems", Saifur Rahman, post-graduate seminar presented at *Bangladesh University of Engineering and Technology*, Department of Electrical Engineering, Dhaka, BANGLADESH, 02 January 1979, 10p.
2. "Assessment of Grid-connected Small-Scale Sources of Electric Energy in Bangladesh", Saifur Rahman, post-graduate seminar presented at *Bangladesh University of Engineering and Technology*, Faculty of Electrical and Electronic Engineering, Dhaka, BANGLADESH, 10 August 1982, 12p.

3. "Market Penetration of Renewable Energy Technologies in Bangladesh", Saifur Rahman, presented at the *National Seminar on Power Development and Policy*, Dhaka, BANGLADESH, August 1982, 22p.
4. "Market Penetration of Renewable Energy Technologies-Policy and Planning Issues", Saifur Rahman, *International Symposium - Workshop on Renewable Energy Sources*, Lahore, PAKISTAN, March 1983, Lecture book published by the Pakistan Council for Scientific and Industrial Research, pp. 31-46.
5. "Microcomputer Based Energy System Planning", Saifur Rahman, lecture presented at the Bangladesh Power Development Board, Directorate of Training and Career Development, Dhaka, BANGLADESH, 18 December 1984, 15p.
6. "Personal Computers in Electric Utility Planning", Saifur Rahman, invited speaker, *IEEE Winter Power Meeting* panel discussion, NEW YORK, February 1985, 5p.
7. "Role of Microcomputers in Bangladesh", Saifur Rahman, seminar presented at DATEC Ltd., Dhaka, BANGLADESH, 19 February 1985, 8p.
8. "Power System Planning in Bangladesh: Dealing with Uncertainties", Saifur Rahman, *Proc. of the International Conference on Energy Development Planning*, Dhaka, BANGLADESH, November 1985, pp. 151-164.
9. "Energy Management Systems for Intelligent Utility Grid Management", D. K. Hudson and Saifur Rahman, presented at the *8th World Energy Engineering Congress,* Atlanta, GEORGIA, October 1985, 22 pages.
10. "Photovoltaic Systems Performance Analysis Models", seminar presented in the Electrical Engineering Department at the *King Abdul Aziz University* in Jeddah, SAUDI ARABIA, 17 November 1985.
11. "Photovoltaics and Fuel Cell Energy System", seminar presented at the *Bangladesh Atomic Energy Center* in Dhaka, BANGLADESH, 25 November 1985.
12. "Photovoltaic Systems for Developing Countries", seminar presented at the *SHARP Corporation Energy Conversion Laboratories* in Nara, JAPAN, 29 November 1985.
13. "Energy Conservation and Solar Energy Usage in Building Design", seminar presented in the *College of Engineering, Korea University* in Seoul, SOUTH KOREA, 2 December, 1985.
14. "A Methodology for Photovoltaic Energy System Evaluation". And
15. "Microcomputer Based Hierarchical System Planning" seminars presented at the *Korea Electric Power Corporation* in Seoul, SOUTH KOREA, 3 December 1985.
16. "A Methodology for Photovoltaic Array Performance Prediction", seminar presented at the *Southeastern Utility PV User's Group Meeting*, Chattanooga, TENNESSEE, May 1986.
17. "Microcomputer Model for Photovoltaic System Design Analysis", seminar presented at the *Center for Energy Studies, Bangladesh University of Engineering and Technology* in Dhaka, BANGLADESH, 9 August 1986.

18. "Energy Systems Research at Virginia Tech", seminar presented at the joint meeting of the *IEEE Hong Kong Section* and the *EE Department, Hong Kong University,* HONG KONG, 14 August 1986.

19. "Electric Power Development in Developing Countries", seminar presented at the *Beijing Economic Research Institute*, *Ministry of Water Resources and Electric Power*, Beijing, CHINA, 18 August 1986.

20. "Application of Expert Systems to Energy Management", seminar presented at the *Commonwealth Scientific and Industrial Research Organization (CSIRO) Research Laboratory*, Sydney, AUSTRALIA, 27 August 1986.

21. "An Expert System Based Algorithm for Short Term Load Forecasting", seminar presented at the *Australian Defense Force Academy*, Canberra, AUSTRALIA, 28 August 1986.

22. "Energy System Planning in Developing Countries: Dealing with Uncertainties", seminar presented at the *University of Tasmania*, Hobart, AUSTRALIA, 29 August 1986.

23. "Design and Analysis of Grid-Connected Photovoltaic Energy Systems", seminar presented at the *Auburn University*, Auburn, ALABAMA, 21 August 1987.

24. "Alternate Sources of Energy - Myth or Reality", lecture presented at the IEEE Virginia Mountain Section Meeting, Roanoke, VIRGINIA, 15 October 1987.

25. "A Knowledge Based Approach to Load Forecasting", Saifur Rahman, invited speaker, panel discussion on "Computer Applications in Forecasting", IEEE Winter Power Meeting, New York City, NEW YORK, 3 February 1988.

26. "An Analysis of the Value of the Grid-Connected Photovoltaic Energy", invited paper, *1989 Photovoltaics Annual Systems Symposium*, WASHINGTON, D.C., 6 - 9 March 1989, 25 p.

27. "Energy System Planning", seminar presented at the *Trisakti University*, Jakarta, INDONESIA, 16 June 1989.

28. "Expert Systems Application to Electric Power Engineering", seminar presented at the *University of Indonesia*, Jakarta, INDONESIA, 17 June 1989.

29. "Planning, Development and Operation of Electric Energy Systems", seminar presented at the *Institute of Technology*, Bandung, INDONESIA, 19 June 1989.

30. "A Technique for Evaluating Alternatives in Electricity Supply Planning in Indonesia", paper presented at the *2nd Energy Conference*, *University of Sriwijaya*, Palembang, INDONESIA, 4-5 July 1989, 25 p.

31. "Expert Systems and Their Application to Power Systems", And

32. "Photovoltaics and Their Relevance to Grid Connected/Autonomous Energy Systems", seminars presented at the joint meeting of the Institution of Engineers (INDIA) and the EE Dept., *Indian Institute of Technology*, New Delhi, INDIA, 15 November 1989.

33. "Expert Systems in Power System Operation and Planning", seminar presented at the *National Grid Research and Development Center*, Leatherhead, Surrey, UNITED KINGDOM, 31 July 1990.

34. "Application of Artificial Intelligence in Power Planning", seminar presented at the *Bangladesh University of Engineering and Technology*, Dhaka, BANGLADESH, 8 August 1990.

35. "Overview of AI Activities at Virginia Tech, and Survey of AI Applications in Power Planning", seminar presented at the *ABB Network Control Research Center*, Gebenstorf, SWITZERLAND, 16 August, 1990.

36. "Potential Applications of Expert Systems in the Electric Power Industry", seminar presented at the *Korea Electric Power Corporation*, Seoul, SOUTH KOREA, 19 November 1990.

37. "Expert Systems and Their Applications", seminar presented in the Electrical Engineering Department, *Yonsei University*, Seoul, SOUTH KOREA, 20 November, 1990.

38. "Incorporation of Newly Emerging Trends in Long Range Energy and Peak Demand Forecasting", S. Rahman and G. Shrestha, presented at the *NSF Workshop on Research Needs for Coping with Uncertainty In Power Systems*, University of Oklahoma, Norman, OKLAHOMA, July 1991, 19p.

39. "Application of Genetic Algorithms to Optimal Reactive Power Dispatch", S. Rahman and R. Jayendar, presented at the *First International Workshop on Voltage Collapse and Voltage Control*, Lagos, NIGERIA, 13-18 January 1992, 14p.

40. "Photovoltaic and Fuel Cell Power Plants as Supplemental Generation Source", S. Rahman, presented at the *1992 ISA/IEEE Symposium and Exhibit*, Columbus, OHIO, 4 March 1992.

41. "A Framework to Incorporate Emissions and Third Party Generation Issues in the Generation Planning Process", S. Rahman, Seminar presented at *American Electric Power Corporation*, Columbus, OHIO, 4 March 1992.

42. "A Priority Vector Based Load Forecasting," S. Rahman, seminar presented at the *Ohio State University*, Columbus, OHIO, 4 March 1992.

43. "A Framework for Integrated Resource Planning in the Electric Power Sector", S. Rahman and A. deCastro, presented at the *Universidad Pontificia Comillas*, Madrid, SPAIN, March 1992, 21p.

44. "Identification of Load Management Opportunities in PLN", S. Rahman, seminar presented at the *State Electricity Authority (PLN)*, Jakarta, INDONESIA, March 1992.

45. "The Clean Air Act, Emissions Trading and the New Environmental Scene in the U.S.A.", Saifur Rahman, presented at the *Polytechnic Anniversary Power Symposium*, Hong Kong Polytechnic, HONG KONG, 28 November 1992, 11 pages.

46. "History, Current Status and Prospects for Demand Side Management in the USA", Saifur Rahman, seminar presented at the *Tokyo Electric Power Company*, Tokyo, JAPAN, 24 February 1993, 27p.

47. "Development of Demand Side Management Programs in the U.S. Utilities", Saifur Rahman, seminar presented at the *Kansai Electric Power Company*, Osaka, JAPAN, 9 April 1993, 23p.

48. "Application of Renewable Energy Technologies around the World", Saifur Rahman, seminar presented at the *Xian Jiaotong University*, Xian, CHINA, 5 May 1993.

49. "Demand Side Management: History and Prospects", Saifur Rahman, seminar presented at the *Electric Power Research Institute*, Beijing, CHINA, 7 May 1993, 28p.

50. "Renewable Energy Technologies: Their Benefits and Drawbacks", S. Rahman, seminar presented at the *Electric Power Research Institute*, Beijing, CHINA, 7 May 1993.

51. "A Knowledge Based Model for Estimating Global Insolation", S. Rahman, seminar presented at the *6th Research Institute, Ministry of Electronics Industry*, Beijing, CHINA, 10 May 1993, 17p.

52. "Current Status and Prospects of Non-conventional Technologies", S. Rahman, seminar presented at the *Tokyo Electric Power Company*, Tokyo, JAPAN, 20 May 1993, 15p.

53. "Demand Side Management: Theory, Practice and Expected Benefits", S. Rahman, seminar presented at the *Regional Engineering College*, Rourkela, INDIA, 14 June 1993, 15p.

54. "A Framework to Study the Impact of DSM Actions on the TEPCO System Capacity Needs", S. Rahman, seminar presented at the *Tokyo Electric Power Company*, Tokyo, JAPAN, 21 June 1993, 30p.

55. "Status of the Electric Power Industry in Japan", S. Rahman, paper presented at the *International Symposium on Electric Energy Systems*, Dhaka, BANGLADESH, 15 December 1993, 17p.

56. "Generation and Use of Electricity and Their Impacts on the Environment", seminar presented at the *United Nations Economic and Social Commission for Asia and the Pacific*, Environment and Natural Resources Management Division, Bangkok, THAILAND, 8 July 1994, 33p.

57. "Generation and Use of Electricity and Their Impacts on the Environment", seminar presented at *University of Technology, Malaysia*, Faculty of Electrical Engineering, Kuala Lumpur, MALAYSIA, 11 July 1994, 33p.

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60. "Generation and Use of Electricity and Their Impacts on the Environment", seminar presented at *Tokyo Electric Power Company*, R & D Planning Department, Tokyo, JAPAN, 22 July 1994, 33p.

61. "Generation and Use of Electricity and Their Impacts on the Environment", seminar presented at *Pacific Gas & Electric Company*, Electric Supply Computer Services Department, San Francisco, CALIFORNIA, 25 July 1994, 33p.

62. "Challenges in the Indian Power Sector in the 21st Century", Panelist, *Eighth National Power System Conference,* New Delhi, INDIA, 17 December 1994.

63. "Energy Efficiency Improvements, Renewable Energy and Opportunities for Mitigating Greenhouse Gas Emissions", seminar presented at *Ecole National d'Ingenieur de Tunis,* Tunis, TUNISIA, 16 March 1995, 32p.

64. "Energy Efficiency Improvements, Renewable Energy and Opportunities for Mitigating Greenhouse Gas Emissions", seminar presented at *Société Tunisienne de L'Electricité et du Gaz*, Tunis, TUNISIA, 17 March 1995, 30p.

65. "Private Power in Bangladesh: Prospects and Hidden Problems", S. Rahman, paper presented at the *International Conference for Economic, Social and Technological Advancement of Bangladesh*, University of Pittsburgh, PENNSYLVANIA, August 1995, 12p.

66. "Global Electricity Generation and Their Environmental Impacts," S. Rahman. *S. P. Patra Memorical Lecture* presented at the Jadavpur University, Calcutta, INDIA, 10 November 1995, 30p.

67. "Cost-Effective Electricity Dedicated to Preserving the Environment", S. Rahman, paper presented at *NATO Advanced Research Workshop*, "Strategies for Environmental Sustainability: Lessons from International Cooperation", Moscow, RUSSIA, April 1996, 24 pages.

68. "Power Generation, Energy Efficiency and Global Environment", seminar presented at the *Sana'a University and the Public Electricity Corporation*, Sana'a, YEMEN, June 1996, 30 pages.

69. "Power System Education and Research", *National Science Foundation*, Arlington, VIRGINIA, July 1996, 10 pages.

70. "Energy Efficient Power Generation & Environmental Concerns", Seminar at *Bangladesh University of Engineering and Technology*, Dhaka, BANGLADESH, August 1996, 12 pages.

71. "International Cooperation and Citizen Awareness in Protecting Global Climate", presented at the *Washington Summit on Protection of the World's Climate*, Climate Institute, Washington, D.C., September 1996, 8 pages.

72. "An Advanced Technique for Electric Load Forecasting", presented at the *EPRI Workshop on Electric Utility Forecasting in an Era of Deregulation*, Dallas, TEXAS, November 1996, 15 pages.

73. "Experience in Joint Research with Developing Countries", talk presented at the *Annual Congress of the Tunisian Scientific Society*, Crystal City, VIRGINIA, 20-21 December 1996, 6 pages.

74. "Issues on Energy Development and National Security of Bangladesh", talk presented at the *Bangladesh Institute of International and Strategic Studies*, Dhaka, BANGLADESH, March 1997, 6 pages.

75. "Opportunities and Challenges in Power Sector Development: Private Power and International Trade in Electricity", seminar presented at the *Bangladesh University of Engineering & Technology*, Dhaka, BANGLADESH, March 1997, 13 pages.

76. "Innovations in Electric Power Engineering Education", panel session, presented at the *American Power Conference*, Chicago, ILLINOIS, April 1997, 6 pages.

77. "Rural Electrification and Environmental Mitigation through Renewables and Dispersed Generation", National Seminar, *Institution of Engineers*, Dhaka, BANGLADESH, October 1997, 16 pages.

78. "Next Generation Internet: Perspectives of the National Science Foundation", *Global Engineering Education Workshop*, Grenoble, FRANCE, December 1997, 25 pages.

79. "Innovations and Manpower Needs in Electric Power Engineering ", panel session, presented at the *American Power Conference*, Chicago, ILLINOIS, April 1998, 6 pages.

80. "Greenhouse Gas Mitigation Opportunities Through Energy Efficiency and Energy Management", seminar presented in the *Electrical Engineering Department, Shanghai Jiaotong University*, Shanghai, CHINA, May 1998, 10 pages.

81. "Global Warming and the Electric Power Sector", seminar presented at the *Institute for Techno-Economic and Energy Systems Analysis*, Tsinghua University, Beijing, CHINA, May 1998, 12 pages.

82. "Mitigation of Greenhouse Gas Emissions Through Small Scale Hydropower", *Proc. Workshop on Prospects of Small Hydropower Generation in Bangladesh*, Bangladesh University of Engineering & Technology, Dhaka, BANGLADESH, May 1998, pp. K-19 to K-28.

83. "Development of Environment-Friendly Energy and Transportation Sectors in Bangladesh", seminar presented at the *Bangladesh Institute of International & Strategic Studies*, Dhaka, BANGLADESH, May 1998, 10 pages.

84. "Energy Efficiency Impacts on Greenhouse Gas Emissions", seminar presented at *Universiti Teknologi Malaysia*, Johor Bahru, MALAYSIA, May 1998, 15 pages.

85. "Research and Development and the Restructured Electric Utility", panel session, presented at the *IEEE International Symposium on Electrical Insulation*, Arlington, VIRGINIA, June 1998, 5 pages.

86. "Electric Power Supply Alternatives and Energy Security Issues in Bangladesh", seminar presented at the *12th North America Bangladesh Convention*, New York City, NEW YORK, September 1998, 8 pages.

87. "Global Warming, Country Responsibilities and Mitigation Opportunities", seminar presented at the *Imperial College*, London, UNITED KINGDOM, October 1998, 28 Pages.

88. "Intelligent Distributed Autonomous Power Systems", seminar presented at the *Ecole Polytechnique Federal de Lausanne*, Lausanne, SWITZERLAND, October 1998, 8 pages.

89. "Research and New Educational Programs in Power Systems", panel session, presented at the *IEEE Winter Power Meeting*, New York City, NEW YORK, February 1999, 5 pages.

90. "Energy Systems Program at the National Science Foundation and Opportunities for International Collaboration", presented at the *Workshop on Teaching and Research in Power Electronics and its Applications*, Amman, JORDAN, 18-24 May 1999, 15p.

91. "Impacts of Electricity Generation on Global Warming and Mitigation Opportunities", presented at the *Annual Seminar of American Association of Bangladeshi Engineers and Architects*, Falls Church, VIRGINIA, 31 October 1999, 20p.

92. "Intelligent Distributed Autonomous Power Systems – Opportunities and Challenges", seminar presented at the *University of Nebraska-Lincoln Corporate Sponsored Electrical Engineering Colloquium Program*, Lincoln, NEBRASKA, 18 November 1999, 11p.

93. "Energy Use, Global Warming and Opportunities for Bangladesh", presented at the *First International Seminar organized by the Bangladesh Environment Network*, Dhaka, BANGLADESH, 14-15 January 2000, 16p.

94. "Global Warming, Carbon Trading and Opportunities for Indonesia", invited paper presented at the *Institute of Technology*, Bandung, INDONESIA, January 2000, 20p.

95. "Critical Infrastructure Dependency: A View from NSF", *International Conference on Dependable Systems and Networks*, New York City, NEW YORK, 26 June 2000, 5p. (Invited paper)

96. "Energy Use and Global Climate Change", *4th Thomas Alva Edison Memorial Lecture*, IEEE Delhi, INDIA, 11 August 2000, 18p. (Invited paper)

97. "Digital Library for Engineering & Technology", *NSF CRCD/AAECIP Annual Grantees Meeting*, Washington, D.C., 2-3 October 2000, 21p. (Invited paper)

98. "Demand side management and energy efficiency", "Renewable energy including solar and wind" and "Infrastructure needs of the information technology industry", three lectures presented at the *IEEE Malaysia Section under the IEEE Distinguished Lecture Program*, Kuala Lumpur, MALAYSIA, 24 October 2000.

99. "Infrastructure needs of the information technology industry", lecture presented at the *IEEE Bangladesh Section under the IEEE Distinguished Lecture Program*, Bangladesh Institution of Engineers, Dhaka, BANGLADESH, 24 October 2000.

100. "Demand side management and energy efficiency" and "Impact of electricity generation on the global environment", two lectures presented at the *IEEE Thailand Section under the IEEE Distinguished Lecture Program*, Chulalongkoran University in Bangkok, THAILAND, 31 October 2000.

101. "Distributed generation technologies including fuel cells", lecture presented at the *IEEE Calcutta Section under the IEEE Distinguished Lecture Program,* Jadavpur University, Calcutta, INDIA, 2 November 2000.

102. "Information technology industry supported by distributed generation", lecture presented at the *IEEE Delhi Section under the IEEE Distinguished Lecture Program,* Delhi College of Engineering, Delhi, INDIA, 4 November 2000.

103. "Distributed generation technologies including fuel cells", and "Greenhouse gas emissions and global warming issues", two lectures presented at the *IEEE Uttar Pradesh Section under the IEEE Distinguished Lecture Program,* Indian Institute of Technology, Kanpur, INDIA, 6 November 2000.

104. "Infrastructure needs of the information technology industry", lecture presented at the *IEEE Delhi Section under the IEEE Distinguished Lecture Program,* Jamia Milia Islamia University, New Delhi, INDIA, 7 November 2000.

105. "Greenhouse Gas Emissions and Global Warming Issues", lecture presented at the *Indian Institute of Technology under the IEEE Distinguished Lecture Program,* Bombay, INDIA, 8 November 2000.

106. "Demand side management and energy efficiency", lecture presented at the *Maharashtra State Electricity Board under the IEEE Distinguished Lecture Program,* Bombay, INDIA, 8 November 2000.

107. "Distributed generation technologies: A global perspective", *NSF Workshop on Sustainable Energy Systems,* Georgia Tech, Atlanta, GEORGIA, 29 November - 1 December 2000, 21p. (Invited paper)

108. "A Roadmap for Bangladesh to Play an Expanded Role in the International IT Market", presented at the *Tech Transfer International Conference in Dhaka*, BANGLADESH, 22-24 December 2000, 22p. (Invited paper)

109. "Demand side management and energy efficiency", paper presented at the *8th Annual IEEE Technical Exchange Meeting under the IEEE Distinguished Lecture Program,* Dhahran, SAUDI ARABIA, 23-24 April 2001, 16p.

110. "Greenhouse Gas Emission and Global Warming Issues – the Role of Renewable and Advanced Energy Systems", *IEEE Distinguished Lecture presented at the National Technical University of Athens*, GREECE, 16 May 2001, 45p.

111. "Fuel Cell as a Distributed Generation Technology", Panel on Sustainable Energy Technologies and Distributed Generation, *IEEE PES Summer Meeting*, Vancouver, CANADA, 17 July 2001, 18p.

112. "Distance Learning Opportunities and Infrastructure Needs" invited lecture presented at the *BRAC University*, Dhaka, BANGLADESH, 18 September 2001, 21p.

113. "Distributed Energy Resources –What, Why and How?", invited lecture presented at the *Bangladesh University of Engineering and Technology*, Dhaka, BANGLADESH, 20 March 2002, 31p.

114. "Introduction to Distributed Energy Resources and Management" invited lecture presented at *Institution of Engineers Bangladesh*, Dhaka Center, BANGLADESH, 21 March 2002, 30p.

115. "Role of Distributed Generation in Sustainable Electric Energy Development", invited lecture, Proceedings of the *Symposium on Sustainable Electric Energy Development for the 21st Century*, Hong Kong Polytechnic University, HONG KONG, 11 October 2002, 48p.

116. "New Generation Options for Sustainable Electric Energy Development", invited lecture presented at *Institution of Engineers Bangladesh*, Dhaka Center, BANGLADESH, 16 October 2002, 36p.

117. "Alternate Technologies for Telecommunications and Internet Access in Remote Locations", Saifur Rahman and Manisa Pipattanasomporn, invited **Plenary Lecture**, *Proceedings of Medpower 2002,* Athens, GREECE, 4-6 November 2002, 7p.

118. "Information and Communication Technology Infrastructure and its Distributed Generation Solution in Remote Areas", Manisa Pipattanasomporn and Saifur Rahman, invited **Keynote Lecture,** *Proceedings of the 2nd International Conference on Electrical and Computer Engineering, ICECE 2002*, Dhaka, BANGLADESH, 26-28 December 2002, pp. 258-268.

119. "An Introduction to SCORM-Compliant Smart Objects", Saifur Rahman, Yonael Teklu and V.P. Pushpagiri, colloquium presented in the Computer Science Department at the *Old Dominion University*, Norfolk, VIRGINIA, 26 March 2003, 32p.

120. The Critical Infrastructure Modeling and Assessment Program (CIMAP) at Virginia Tech" invited presentation at the *Virginia Institute for Defense and Homeland Security Research Summit*, Washington, D.C., 25 June 2003, 15p.

121. "Distributed Generation Technologies: A Sustainable Energy Solution", invited lecture, School of Engineering and Industrial Design, *University of Western Australia,* Kingswood Campus, Sydney, AUSTRALIA, 8 August 2003, 50p.

122. "Decision Making in an Uncertain Environment", IEEE Distinguished lecture, *IEEE Power Engineering Society, Western Australia Chapter*, Perth, AUSTRALIA, 11 August 2003, 52p.

123. "Greenhouse Gas Emissions, Distributed Generation Technologies and Energy Efficiency", IEEE Distinguished lecture, *IEEE Power Engineering Society, Victorian Chapter*, Monash University, Melbourne, AUSTRALIA, 13 August 2003, 54p.

124. "A Sustainable Electricity Solution through Distributed Generation and Energy Efficiency", IEEE Distinguished lecture, Auckland University, joint meeting of *IEEE, IEE and the Institute of Professional Engineers of New Zealand*, Auckland, NEW ZEALAND, 15 August 2003, 49p.

125. "A Sustainable Electricity Solution: Issues and Answers", IEEE Distinguished lecture, *IEEE New Zealand South Section*, University of Canterbury, Christchurch, NEW ZEALAND, 16 August 2003, 49p.

126. "Critical Infrastructure Dependency: A View from the United States", invited lecture, *European Critical Infrastructure Protection Workshop*, Frankfurt, GERMANY, 29 September 2003, 12p.

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132. "Digital Library Network for Engineering and Technology: An NSDL Project", Invited Presentation, *Jadavpur University*, Kolkata, INDIA, 5 January 2004, 42p.

133. "Electricity and the Global Environment", Invited Presentation, *Bengal Engineering College*, Kolkata, INDIA, 6 January 2004, 47p.

134. "Nationwide Internet Connectivity: A Case Study for Bangladesh", Invited paper, *Proc. All India Seminar on Wireless and Wireline Communication Scenario in North Eastern Region*, Guwahati, Assam, INDIA, 31 January - 01 February 2004, 6p.

135. "Internet Connectivity and Wireless Broadband Access", S. Rahman, Seminar at *HTA Luzern,* SWITZERLAND, 9 March 2004, 17p.

136. "Telecommunication Needs for the Internet Infrastructure in Bangladesh", S. Rahman and M. Pipattanasomporn, Invited paper*, International Workshop on Nationwide Internet Access & Online Applications*, Dhaka, BANGLADESH, 22-24 May 2004, 8p.

137. "Distributed Generation Solutions for Internet Access in Remote Areas" M. Pipattanasomporn and S. Rahman, Invited paper*, International Workshop on Nationwide Internet Access & Online Applications*, Dhaka, BANGLADESH, 22-24 May 2004, 7p.

138. "Distribution Generation Technologies: Exploring the Opportunities", technical seminar jointly organized by *IEEE Power Engineering Chapter, Nanyang Technological University and National University of Singapore*, SINGAPORE, 24 May 2005, 52p.

139. "Distributed Generation Technologies and Sustainable Electricity Supply", Presentation to the *Malaysia Chapter of IEEE Power Engineering Society*, 2 August 2005, Universiti Putra Malaysia, Selangor, MALAYSIA, 2 August 2005, 59p.

140. "Critical Information Infrastructure Protection: Overview of the R&D in the U.S.", *Workshop on Critical Information Infrastructure Protection, Research and Development,* Prague, CZECH REPUBLIC, 13-15 September 2005, 29p.

141. "From Information Sharing to Outreach: Establishing Innovative Tools for Information Management", *Proc., EAPC/PfP Workshop on Critical Infrastructure Protection &Civil Emergency Planning*, Zurich, SWITZERLAND, 22-24 September 2005, pp. 229-231.

142. "Greenhouse Gas Emissions and its Mitigation Potential", Invited presentation at the *Hong Kong University Center for Urban Planning and Environmental Management,* HONG KONG, 5 October 2005, 38p.

143. "Greenhouse Gas Emissions - Climate Change and Renewable Energy", Invited presentation at the *Hong Kong Friends of the Earth*, HONG KONG, 5 October 2005, 48p.

144. "Impact of Natural Disasters on Critical Infrastructures", Invited paper, S. Rahman and M. Pipattanasomporn, *Proceedings, First Bangladesh Earthquake Symposium,* Dhaka, BANGLADESH, 14-15 December 2005, pp. 227-234.

145. "Energy, Energy Efficiency and the Environment", Invited presentation, S. Rahman, CEPEL – Centro de Pesquisas de Energia Electrica, Rio De Janeiro, BRAZIL, 10 March 2006, 38p.

146. "Quality Engineering Education in the 21 Century: Role of the Teaching Community", Invited presentation, S. Rahman, *Symposium on Quality Engineering Education*, Bangladesh University of Engineering & Technology, Dhaka, BANGLADESH, 18 March 2006, 48p.

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Technical Education, Institution of Engineers, Bangladesh, Dhaka, BANGLADESH, 20 March 2006, 26p.

148. "Global Energy Use, Climate Change, Distributed Generation and Energy Efficiency", Invited presentation, S. Rahman, *China Electric Power Research Institute*, Beijing, CHINA, 17 April 2006, 44p.

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154. "Wind Energy: Opportunities and Challenges for Offshore Applications", S. Rahman, George Hagerman and Manisa Pipattanasomporn, Invited talk at the *IEEE Richmond Section*, Richmond, VIRGINIA, September 2006, 32p.

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159. "Renewables and Distributed Generation: Issues for the Future", S. Rahman, invited presentation, Panel Session on: "Renewable Energy Sources – Policy and Implementation Issues", organized by *IEEE PES/IAS Chapters, Hyderabad Section*, INDIA, March 2007, 35p.

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170. "Improving Resilience and Acceptance of Large Energy Infrastructure Projects", Invited talk, Saifur Rahman, *5th EAPC/PfP Workshop on Critical Infrastructure Protection & Civil Emergency Planning*: Comprehensive Views on Resilient Infrastructures, Zurich, SWITZERLAND, October 2007, 37p.

171. "Global Warming and Greenhouse Gas Mitigation Opportunities ", Professor Saifur Rahman, *IEEE PES Distinguished Lecture*, Detroit, MICHIGAN, November 2007, 44p.

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173. "State-of-the-Art and Trends in Renewable Energy Technologies: A Global Perspective", Invited lecture, Saifur Rahman, *International Conference on Renewable Energies and Water Desalination Technologies*, Tripoli, LIBYA, March 2008, 47p.

174. "Renewable Energy Technologies: A Global Perspective", Saifur Rahman Distinguished Lecture *IEEE PES St. Louis Chapter*, St. Louis, MISSOURI, April 2008, 57p.

175. "Energy Efficiency in Buildings", Saifur Rahman, Invited Talk, *Green Buildings Action Forum,* Washington D.C., April 2008, 13p.

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Invited talk, Saifur Rahman, *Bangladesh University of Engineering & Technology*, Dhaka, BANGLADESH, March 2009, 30p.

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191. "An Introduction to Intelligent Grids for Distributed Generation and Demand Management", **Keynote speech**, Saifur Rahman, *Asia-Pacific Power & Energy Engineering Conference*, Wuhan, CHINA, March 2009, 40p.

192. "The Smart Grid and its Impact on the Integration of Distributed Energy Resources" invited talk, Saifur Rahman, *State Grid Electric Power Research Institute*, Nanjing, CHINA, 1 April 2009, 39p.

193. "The Smart Grid and its Impact on the Integration of Distributed Energy Resources" Guest Professorship Lecture**,** Saifur Rahman, *Southeast University*, Nanjing, CHINA, 2 April 2009, 42p.

194. "The Smart Grid and its Impact on the Integration of Intermittent Energy Resources", invited talk, Saifur Rahman, *Jadavpur University*, Kolkata, INDIA, 30 April 2009, 34p.

195. "Promotion of Solar Lighting Systems Technology and Policy Options", invited talk, Saifur Rahman, *Jadavpur University*, Kolkata, INDIA, 30 April 2009, 42p.

196. "Nuclear Power in Bangladesh: Concerns About Cost and Energy Security", invited talk, Saifur Rahman, *the Nuclear Power Roundtable Discussion, Organized by the BUET Alumni Association and the Daily Star*, Dhaka, BANGLADESH, 9 May 2009.

197. "Using ICT and Solar Power for Development in Bangladesh", invited talk, *AEDSB Seminar, the World Bank,* Washington, D.C., 12 May 2009, 31p.

198. "Global Warming, Carbon Trading and Opportunities in South Asian Countries", invited talk, *South Asia Women in Energy (SAWIE) Executive Exchange*, organized by U.S. Energy Association, Washington, D.C., 13 May 2009, 16p.

199. "Role of Renewable Energy in Mitigating the Need for Large Central Station Power Plants", *IEEE PES Distinguished Lecture***,** SINGAPORE, August 17, 2009; Perth, AUSTRLIA, August 19, 2009; Brisbane, AUSTRALIA, August 21, 2009 and Sydney, AUSTRALIA, 24 August 2009, Part A and Part B, 210p.

200. "What is the Smart Grid and What is Needed to Make it a Reality", *IEEE PES Distinguished Lecture***,** SINGAPORE, August 17, 2009; Perth, AUSTRALIA, August 19, 2009; Brisbane, AUSTRALIA, August 21, 2009 and Sydney, AUSTRALIA, 24 August 2009, 40p.

201. "Electricity in Indonesia: Universal Coverage and Fuel Issues", *Invited Talk, US-Indonesia Society.* Washington, D.C., 15 September 2009, 18p.

202. "Smart Grid and Renewable Energy", *Invited Lecture on Sustainability*, Siemens Building Technologies Symposium, Washington, D.C., 16 September 2009, 17p.

203. "What is a Smart Grid and What Can it do for US", *IEEE Power & Energy Society Distinguished Lecture,* The Petroleum Institute, Abu Dhabi, UNITED ARAB EMIRATES*, 28* October 2009, 45p.

204. "The Role of Smart Grid in America's Energy Future", *Invited Presentation, VEDP/Ally Meeting*, Richmond, VIRGINIA, 3 December 2009, 24p.

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206. "Role of Renewable Energy in Mitigating the Need for Large Central Station Power Plants", *Tutorial*, Sultan Qaboos University, Muscat, OMAN, 13 December 2009, 60p.

207. "Importance of Electrical Power System Education", *Workshop on Electrical Energy, NSF*, Texas A&M University, Doha, QATAR, 14 December 2009, 18p.

208. "Challenges and Opportunities in Smart Grid Research and Applications", *Invited Lecture, United International University*, Dhaka, BANGLADESH, 23 December 2009, 33p.

209. "Distributed Generation and Energy Security in Developing Countries", *Invited Lecture, King Abdul Aziz University*, Jeddah, SAUDI ARABIA, 17 March 2010, 41p.

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212. "Analysis of the Impact of PHEVs on the Electric Power Distribution Network", invited panel presentation at *IEEE T&D Conference and Exposition* panel on *Impact of Electric Vehicles on Power Distribution Grid Infrastructure*, New Orleans, LOUISIANA, 19-23 April 2010, 33p.

213. "The Smart Grid and its Opportunities and Challenges*", IEEE PES Distinguished Lecture at the IEEE PES/IAS Joint Chapter Meeting*, Arlington, VIRGINIA, 20 May 2010, 32p.

214. "Critical Infrastructures in Changing Times: Need for Resiliency", *Invited Panel Presentation at the International Disaster and Risk Conference (IDRC),* Davos, SWITZERLAND, 2 June 2010, 22p.

215. "Role of the Smart Grid in Alleviating Electrical Power System Stress Conditions Through Demand Response", *IEEE PES Distinguished Lecture*, Vancouver, CANADA, 26 August 2010, 26p.

216. "The Smart Grid: An Introduction", *IEEE PES Distinguished Lecture at the IEEE Section Meeting,* Arlington, VIRGINIA, 2 September 2010, 26p.

217. "Role of the Smart Grid in Alleviating Electrical Power System Stress Conditions Through Demand Response", *IEEE PES Distinguished Lecture at the Pacific Northwest National Laboratory,* Richland, WASHINGTON, 7 September 2010, 26p.

218. "Smart Grid Research Needs", invited presentation *at the National Institute of Standards and Technology (NIST) Smart Grid Advisory Committee Meeting,* Gaithersburg, MARYLAND, 29 September 2010, 19p.

219. "How to Manage the Penetration of Electric Vehicles in the Electric Power Distribution Network", *IEEE PES Distinguished Lecture,* Hampton Roads, VIRGINIA, 6 October 2010, 29p.

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223. "Role of the Smart Grid in Managing the Integration of Wind and Solar Power Generation", *Invited Lecture at the Istanbul Technical University*, Istanbul, TURKEY, 26 November 2010, 42p.

224. "Opportunities for International Collaboration on Research & Development in Energy and Information Systems", *Discussion at TUBITAK MRC*, Gebze, Istanbul, TURKEY, 29 November 2010, 28p.

225. "Smart Grid as the Facilitator for Demand Control and Integration Intermittent Sources of Generation", *Invited Lecture at Qatar University*, Doha, QATAR, 27 December 2010, 53p.

226. "Solar, Wind and Biomass Technologies", **Keynote speech** *at Daily Star Leadership Colloquium*, Dhaka, BANGLADESH, 7 January 2011, 46p.

227. "Smart Grid, Conservation and Renewable Energy: Technology & Policy Issues", *Invited Presentation Bangladesh Power Development Board*, Dhaka, BANGLADESH, 8 January 2011, 32p.

228. "Smart Grid for Conservation and Loss Reduction", *Invited Presentation Bangladesh Power Development Board*, Dhaka, BANGLADESH, 10 January 2011, 30p.

229. "Multi-Agent Control for Intelligent Buildings in Microgrid", Invited Panel Presentation *2011 IEEE PES Conference on Innovative Smart Grid Technologies*, Anaheim, CALIFORNIA, 17 January 2011, 16p.

230. "Managing Electric Vehicles in the Electric Power Distribution Network*", Invited Presentation at IEEE-USE Annual Meeting*, Austin, TEXAS, 3-4 March 2011, 22p.

231. "The Growth of Smart Grid: A Roadmap for its Development", Invited Presentation *at European Commission- Information Society & Media Directorate General*, Brussels, BELGIUM, 16 March 2011, 34p.

232. "Renewable Energy as a Viable Option in the Bangladesh Electricity Portfolio", Invited Lecture at *Institution of Engineers Bangladesh*, Dhaka, BANGLADESH, 23 March 2011, 38p.

233. "Development of the Smart Grid: The Challenges and Best Practices", Invited Presentation *Southeast University*, Nanjing, CHINA, 28 March 2011, 34p.

234. "Publications in High Impact journals", Invited Presentation *at Universiti Technologi Malaysia*, Johor Bahru, MALAYSIA, 30 March 2011, 10p.

235. "Renewable Energy Technologies and Smart Grid", Invited Talk*, Univ of Technologi Malaysia*, Johor Bahru, MALAYSIA, 31 March 2011, 53p.

236. "How can the Smart Grid Facilitate Demand Response and Renewable Energy Integration?", Invited Lecture, *University of Campinas*, Caminas, BRASIL, 1 June 2011, 42p.

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240. "Addressing Grid Integration Issues with Large Scale Wind Energy Penetration", Panel Presentation, 2011 World Wind Energy Conference, Cairo, EGYPT, 1 November 2011, 16p.

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242. "Smart Grid adds Value to Solar Photovoltaics", Panel Presentation, IEEE Power & Energy Society Innovative Smart Grid Technologies Conference, Perth, AUSTRALIA, 15 November 2011, 7p.

243. "Smart Grid to Facilitate Large Scale Electric Vehicle Penetration", Panel Presentation, IEEE Power & Energy Society Innovative Smart Grid Technologies Conference, Washington, D.C., 18 January 2012, 21p.

244. "What Does it Take to Implement the Smart Grid", Invited Lecture, IEEE NOVA D.C. PES/IAS Chapter, Falls Church, VIRGINIA, 16 February 2012.

245. Congressional Briefing on Wind Energy. Washington, D.C., 29 February 2012, 18p.

246. "Technology and Market Penetration Issues in Renewable Energy", Tutorial, Jamia Millia, New Delhi, INDIA, 29 March 2012.

247. "Smart Grid Opportunities and Challenger", Invited Talk, GTB Institute of Technology, New Delhi, INDIA, 30 March 2012, 34p.

248. "Smart Grid Opportunities and Challenges", Invited Talk, I.T.S Delhi, New Delhi, INDIA, 30 March 2012, 34p.

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250. "Energy & Smart Grid Research @ Virginia Tech-Advanced Research Institute", Presentation, Infotech Enterprises, Hyderabad, INDIA, 2 April 2012, 31p.

251. "Smart Grid as an Enabler of Intermittent Sources of Electricity", Distinguished Lecture Presentation, BHEL, IEEE, PES/IAS/PELS Chapter Meeting, Hyderabad, INDIA, 2 April 2012, 37p.

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254. "Energy & Smart Grid Research @ Virginia Tech-Advanced Research Institute", Presentation, TUBITAK, Istanbul, TURKEY, **11** April 2012, 31p.

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256. "Electrical Power Education: A Global Scenario", Workshop Presentation, UET, Taxila, PAKISTAN, 10 October 2012, 48p.

257. "Smart Grid Improves the Value of Distributed Generation", Distinguished Lecture, IEEE PES, Zagreb, CROATIA, 12 October 2012, 23p.

258. "Microgrid: The Technology Issues and Environmental/Economic Benefits", Panel Presentation, IEEE ISGT Europe, Berlin, GERMANY, 16 October 2012, 15p.

259. "Smart Grid Addresses the Grid Integration Challenges of Distributed Generation", *IEEE PES Distinguished Lecture,* UNITEN, Kuala Lumpur, MALAYSIA, 7 December 2012, 38p.

260. "The Interaction Between Smart Grid and Demand Response in a Smart Utility", Invited Talk, University of Campinas, Campinas, Sao Paulo, BRAZIL, 16 April 2013, 29p.

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264. "Smart Grid and Demand Response Research at Virginia Tech", Invited Talk, The Petroleum Institute, Abu Dhabi, UNITED ARAB EMIRATES, 12 May 2013, 45p.

265. "Presentation to the Delegation led by Quebec Minister Yves-Francois Blanchet", Virginia Tech Advanced Research Institute, Arlington, VIRGINIA, 21 May 2013, 30p.

266. "The Smart Grid: What Makes it Important", IEEE PES Distinguished Lecture, Obuda University, Budapest, HUNGARY, 1 July 2013, 30p.

267. "The Smart Grid: What Makes it Practical", Invited Talk, IEEE PES Chapter, Osijek, CROATIA, 5 July 2013, 36p.

268. "New Direction in Energy & Power Research", *17th Thomas Alva Edison Memorial Lecture*, *Indian Institute of Technology*, New Delhi, INDIA, 19 August 2013, 34p.

269. "Energy & Power Research @ Virginia Tech- Advanced Research Institute", Invited Talk, *Jamia Milia Islamia University*, New Delhi, INDIA, 20 August 2013, 34p.

270. "The Smart Grid and its Building Blocks", Invited talk, IIT Roorkee, Roorkee, INDIA, 21 August 2013, 45p.

271. "Smart Grid adds Value to Distributed Generation, Plenary Talk, International Conference on Instrumentation, Control and Automation, Bali, INDONESIA, 28 August 2013, 36p.

272. "International Goals for Resiliency", Invited presentation, 4th Conference on Community Resiliency, Davos, SWITZERLAND, 29 August 2013, 28p.

273. "The Smart Grid: The First Step into Implementation", Invited Presentation, CEPS, BRUSSELS, EU, 23 September 2013, 20p.

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277. "Energy & Power Research @ Virginia Tech- Advanced Research Institute", Invited Talk, *Institute of Engineering Tribhuvan University*, Kathmandu, NEPAL, 26 September 2013, 31p.

278. "The Smart Grid: Opportunities, Research and Implementation", IEEE PES Distinguished Lecture, *International Islamic University of Malaysia*, Kuala Lumpur, MALAYSIA, 19 December 2013, 46p.

279. "Open-Source Approaches to Building Energy Management", Seminar at Edward J. Bloustein School of Planning and Public Policy, Rutgers University, NEW JERSEY, 10 February 2014, 19p.

280. "Solar Home Systems in Bangladesh: It's impact on Children's Education and Health", invited talk, at Healthy Infrastructure Healthy Communities Panel, Rutgers University, NEW JERSEY, 10 February 2014, 18p.

281. "How can the Smart Grid Facilitate Distributed Generation", invited talk, *IEEE PES/IAS/CSS Joint Chapter Meeting, Washington D.C./Northern Virginia Section*, Arlington, VIRGINIA, 17 April 2014, 42 p.

282. "How can Demand Response help to Integrate Renewable Energy into the Electric Power Grid", Invited Talk, *Int. Islamic University Malaysia*, Kuala Lumpur, MALAYSIA, 21 May 2014, 59p.

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284. "Energy & Power Research @ Virginia Tech- Advanced Research Institute", Invited Talk, *Al Akhawayn University*, Ifrane, MOROCCO, 3 June 2014, 33p.

285. "Energy R&D in Virginia", Presentation, at the Listening Session for the 2014 Virginia Energy Plan, *No VA Community College*, Annandale, VIRGINIA, 17 June 2014, 22p.

286. "Partnership for Innovation: Addressing a Complex Problem", Invited Talk, *Center for Innovation and Entrepreneurship*, Jamia Milia Islamia, New Delhi, INDIA, 11 August 2014, 34p.

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105. "Global Deployment of Solar Photovoltaics: Its Opportunities and Challenges", Shibani Ghosh and Saifur Rahman, Proc. IEEE Innovative Smart Grid Technologies Conference (ISGT-Europe), Ljubljana, SLOVENIA, 9-12 October 2016, 6p.

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1. "Dispatch of Nuclear Power Plants", S. Rahman and L. L. Grigsby, *Proc. of the IEEE Southeastcon*, Williamsburg, VIRGINIA, April 1977, pp. 564-567.
2. "Use of Linear Programming in Generation Control", S. Rahman and L. L. Grigsby, *Proceedings of the Control of Power Systems Conference,* Texas A&M University, College Station, TEXAS, March 1979, pp. 6-9.
3. "Optimum Generation Scheduling in an Electric Utility System", S. Rahman, *IEEE Optimization Days Conference*, McGill University, Montreal, CANADA, 23-25 May 1979, 2p.
4. "A Mathematical Programming Technique for Unit Commitment", S. Rahman and L. L. Grigsby, *Proc. of the 12th Annual Southeastern Symposium on System Theory,* Virginia Beach, VIRGINIA, May 1980, pp. 228-232.
5. "The Impact of Digital Computers on Energy Management", R. Bhatnagar, S. Rahman and L. L. Grigsby, *Proc. of the 13th Southeastern Symposium on System Theory,* FLORIDA, March, 1981, pp. III-A-47-III-A-61.
6. "A Microprocessor Based Demand Forecasting Technique for Energy Management," R. Bhatnagar, S. Rahman and L. L. Grigsby, *Proceedings of IEEE Southeastcon*, FLORIDA, April 1982, pp. 481-484.
7. "Application of Multiprocessing to Power Systems Problems," R. Ramanathan, S. Rahman and L. L. Grigsby, *Proceedings of the 14th Southeastern Symposium on System Theory*, Blacksburg, VIRGINIA, April 1982, pp. 301-304.
8. "A Method of Priorities Applied to Electric Utility Planning, *Analytic Techniques for Energy*, June 1983.
9. "Optimal Power Flow Using a General Nonlinear Programming Package", R. M. Nelms, S. Rahman and L. L. Grigsby, *Proceedings of the 17th Southeastern Symposium on System Theory,* Auburn, ALABAMA, March 1985, pp. 164-167.
10. "Large Scale Personal Computer Use in Electrical Engineering Education", R. O. Claus, F. C. Brockhurst, S. Rahman, W. L. Stutzman and J. G. Tront, *Proc. IEEE Southeastcon*, Raleigh, NORTH CAROLINA, April 1985, pp. 18-21.
11. "Evaluation of Photovoltaic Generation Application in a Large Electric Utility System", M. A. Khallat and S. Rahman, *Proc. IEEE Southeastcon*, Richmond, VIRGINIA, March 1986, pp. 65-68.

12. "Application of Knowledge Based Algorithms in Electric Utility Load Forecasting", R. Bhatnagar and S. Rahman, *ibid*, pp. 60-64.
13. "A Microcomputer Model for Photovoltaic Energy System Performance Analysis", H. Marathe and S. Rahman, *ibid*, pp. 182-186.
14. "Expert Systems and Their Applications in Energy Management", M. F. Baba and S. Rahman, *ibid*, pp. 187-191.
15. "A Method to Estimate the Reliability of Expert Judgment", G. Shrestha and S. Rahman, *Proc. IEEE Southeastcon*, Columbia, SOUTH CAROLINA, April 1989, vol. 1, pp. 152-157.
16. "Integration of Customer-owned Generation into the Electric Utility Load Dispatching Technique", M. Bouzguenda and S. Rahman, *ibid*, vol. 2, 1989, pp. 814-819.
17. "Design and Implementation of an Expert System for Data Sanity Checking", S. Lahouar and S. Rahman, *ibid*, 1989, vol. 1, pp. 146-151.
18. "Application of High Resolution Insolation Data for Photovoltaic System Design Analysis", J. Jockell and S. Rahman, *ibid*, 1989, vol. 3, pp. 1430-1435.
19. "Application of a Rule-Based Technique to Weekly Load Forecast", S. Rahman and I. Moghram, *ibid*, 1989, vol. 1, pp. 380-385.

Formal Reports Circulated by State or Federal Government Agencies

1. Issues in the Future Supply of Electricity to the Northeast, P. M. Meier, T. H. McCoy and S. Rahman, Broo*khaven National Laboratory*, New York, BNL-50553, June 1976, 114p.
2. Preliminary Assessment of a Hypothetical Nuclear Energy Center in New Jersey, P. F. Palmedo, P. M. Meyer, S. Rahman, J. S. Munson et. al., *Brookhaven National Laboratory*, BNL-50465, November 1975, 423p.
3. Modeling and Analysis of Power Processing Systems (MAPPS), Final Report, Vols. I and II, F. C. Lee, S. Rahman, R. A. Carter, C. H. Wu, Y. Yu and R. Chang, *National Aeronautics & Space Administration*, *NASA* CR-165538, December 1980, 550p.
4. Distribution System Simulator, K. A. Bahrami, H. Kirkham and S. Rahman, *Jet Propulsion Laboratory*, Pasadena, CA, JPL-86-41, DOE/ET 29372-6, August 1986, 36p.
5. A Study of the Economic Impact of Operating Photovoltaic Systems in the Electric Utility Grid, S. Rahman, *Sandia National Laboratory*, SAND88-7043, March 1989, 93p.
6. Improving Virginia's Attractiveness for High Technology Industries", Final report of the CIT Task Force on Electric Power for Virginia's High Technology Industry, *Center for Innovative Technology*, Virginia, Saifur Rahman and John Bigger, October 2001, 101p.

Company or University Reports, Discussion of Papers

1. Analytical Investigation of Switching Regulator Power Supply Performances for Advanced Avionics, Vols. I & II, Final Report, *Naval Avionics Center*, *U.S. Navy*, F. C. Lee, S. Rahman, D. Y. Chen, S. Chin and T. Lee. et. al., December 1981, Contract No. N00163-80-C-0341, 347p.
2. An Energy Management System for Virginia Industries, Final Report, *Virginia Polytechnic Institute and State University*, L. L. Grigsby, S. Rahman and R. Bhatnagar, June 1982, 348p.
3. Discussion to, "The Introduction of Non-dispatch able Technologies as Decision Variables in Long-Term Generation Expansion Models," *IEEE Transactions on Power Apparatus and Systems,* vol. PAS-101, no. 8, August 1982, pp. 26-66.
4. Impact of Dispersed Generation and Storage on the Operation and Generation Expansion Plans of the Carolina Power and Light Company, Final Report, *Carolina Power and Light Company,* Raleigh, NORTH CAROLINA, S. Rahman, October 1982, 103p.
5. Electrical Energy from Renewable Resources in Virginia, S. Rahman and B. H. Chowdhury, *Virginia Polytechnic Institute and State University*, June 1984, 125p.
6. Impact of Energy Management on the Consumers of Electric Energy in Virginia, R. Bhatnagar, S. Rahman, L. Grigsby and F. Brockhurst, *Virginia Polytechnic Institute and State University*, June 1984, 114p.
7. A Methodology for Assessing Small Scale Sources of Electric Energy in Bangladesh, S. Rahman, Final report, *National Science Foundation*, Grant No. INT-8200483, February 1985, 91p.
8. Capacity and Energy Value from Photovoltaic Systems in the Carolina Power and Light Service Area, S. Rahman, Final report, *Carolina Power and Light Company*, November 1985, 92p.
9. The Analysis and Evaluation of Cogeneration for Supplying Electricity, Vols. I & II, B. H. Chowdhury and S. Rahman, Final Report, *Virginia Polytechnic Institute and State University*, May 1986, 170p.
10. The Analysis, Evaluation and Implementation of Load Management Strategies, R. Bhatnagar and S. Rahman, Vols. I & II, Final Report, *Virginia Polytechnic Institute and State Univ.*, May 1986, 340p.
11. Design and Implementation of a Short Term Load Forecasting System, S. Rahman, et. al., Final Report, *Old Dominion Electric Cooperative*, October 1986, 166p.
12. Solar Data Collection and Analysis for the VISTA Facility, vol. I, Final Report, Saifur Rahman, *Virginia Power*, December 1987, 91p.
13. Quantification of Interrelationships among Electricity Supply System Planning Criteria, Final Report, Saifur Rahman, submitted to *U.S. Agency for International Development*, April 1988, 73p.
14. A Comparative Study of Single Crystal and Polycrystalline PV Module Performances under Diverse Sky Conditions, Final Report, Saifur Rahman, submitted to *Virginia Power*, December 1988, 84p.
15. Solar Data Collection and Analysis for the VISTA Facility, Final Report, vol. 2, Saifur Rahman, submitted to *Virginia Power*, December 1988, 134p.

16. An Expert System Based Energy/Demand Conservation Model for Bulk Electricity Consumers, Final Report, Saifur Rahman, submitted to *Virginia Center for Coal and Energy Research*, March 1990, 70p.

17. Forecasting and Analysis of Photovoltaic Power and an Integrated Load Management Simulator, Final Report, Saifur Rahman, submitted to *Center for Innovative Technology*, December 1990, 107p.

18. Expert Systems in Power System Planning and Engineering, Final Report, Saifur Rahman, *Electric Power Research Institute*, Research Project 2473-41, January 1991, 85p.

19. An Inherently Updatable On-line Load Forecasting Technique, Final Report, Saifur Rahman, *National Science Foundation*, Grant No. 9014331, June 1991, 92p.

20. AI in Electric Power Systems - A Survey of the Japanese Industry, Final Report, Saifur Rahman, *National Science Foundation*, Grant No. 9017799, September 1991, 118p.

21. A Context Based Data Sanity Checking Algorithm and its Implementation, Final Report, S. Rahman and S. Lahouar, submitted to *American Public Power Association and Center for Innovative Technology*, February 1992, 50p.

22. An Inherently Updatable On-Line Forecasting Technique, Final Report, submitted to *National Science Foundation*, July 1993, 92p.

23. A Study of the Economic Impact of Integrating Photovoltaics with Conventional Electric Utility Operation, final report, submitted to *Sandia National Laboratories* contract No. SF6432-CS, January 1994, 159p.

24. A Framework to Study the Impact of DSM Actions on the TEPCO System Capacity Needs, final report submitted to U.S.-Japan Program, *National Science Foundation*, grant no. INT-9201904, August 1994, 62p.

25. Virginia State Agency Solar System Monitoring and Evaluation: Final Technical Report, John Randolph, Bob Schubert, Saifur Rahman and Yonael Teklu, *Virginia Department of Mines, Minerals and Energy*, Richmond, VIRGINIA, May 1995, 257p.

26. Development of a Prototype Database and Decision Support System for Management of the EM-50 Technology Development Program, Final Report, L. J. Moore, S. Rahman and T. K. Sen, *Waste Policy Institute*, November 1996, 250p.

27. Design and Study of an Algorithm to Evaluate the Cost of Power Quality and Wheeled Power Under Varying States of the Power System, Final Report, S. Rahman, J. Pan, Y. Teklu and J. Koda, *Tokyo Electric Power Company, Japan*, August 1998, 200p.

28. Virginia Center for Energy Technology Innovation, Final report submitted to the *Center for Innovative Technology*, Virginia, on completion of a one-year feasibility study to explore the benefits of an energy technology innovation center in Virginia, March 2000, 150p.

29. Generation and Use of Electricity and Their Impacts on the Environment, Final report submitted to the *US National Science Foundation* on completion of a four-year collaborative study with the University of Technology MALAYSIA, May 2000, 105p.

30. Improving Virginia's Attractiveness for High-Technology Industries, Final report submitted to the *Center for Innovative Technology*, Virginia, on completion of a one-year study to explore the gaps and opportunities for infrastructure development for economic development, October 2001, 88p.

31. Digital Library Network for Engineering and Technology, Final report submitted to the *US National Science Foundation* on completion of a two-year collaborative project with the Institute of Electrical and Electronics Engineers, the American Society for Engineering Education, and the Iowa State University, NSF Grant No. DUE 0085849, May 2003, 145p.

32. Monitoring Performance of Electric Utilities: Indicators and Benchmarking in Sub-Saharan Africa, Final Report, P. Tallapragada, M. Shkaratan, A. K. Izaguirre, J. Helleranta, Saifur Rahman and S. Bergman, The World Bank, 2009, 262p.

TEACHING ACTIVITIES

Taught 15 different undergraduate and graduate level courses on energy, power, computer applications, etc. in over 30 years at Texas A&M University and Virginia Tech.

Development of Teaching Methods, Tools & Materials

1. "Microcomputer Based Instructional Aid for Courses in Energy Systems", *Learning Resource Center*, Virginia Tech, Summer Faculty Fellow, 1983.
2. "Alternate Energy Systems", a Web based senior/graduate course delivered asynchronously. Spring 2000 to 2014.
3. "Electrical Energy and Environmental Systems", a Web based graduate course delivered asynchronously. Fall 2001, 2002, 2003, 2004.

Course Development

1. EE 6300: Optimization Methodologies in Power Apparatus and Systems.
2. EE 5364: Electric Energy and Environmental Systems
3. EE 5314: Power System Operation and Control
4. EE 5324: Power System Planning
5. EE 4980: Knowledge-Based Systems
6. EE 4364: Alternative Energy Systems
7. EE 5364: Electric Energy and Environmental Systems
8. EE 2864: Electrical Energy and Global Environment

CONSULTING

Burnshire Dam Hydroelectric Project
Woodstock, Virginia
Period: September 1980 to June 1981
Topic: Electrical generator and controls for two 250 kW hydro-turbines.

Delta Associates
Richmond, Virginia
Period: February 1982
Topic: Preliminary feasibility study to assess the potential for wind turbine generators near Roanoke airport.

Old Dominion Electric Cooperative
Richmond, Virginia
Period: July to August 1985
Topic: Weather and load data reduction for determining the correlation.

United Nations Development Program
Addis Ababa, Ethiopia
Period: December 1986 to January 1987
Responsibility: Microcomputer Specialist

Asian Development Bank - SECID
Palembang, Indonesia
Period: May to June 1989
Responsibility: Senior Energy Specialist

Mobil Solar Energy Corporation
Billerica, Massachusetts
Period: August 1989
Topic: Photovoltaics as a grid-interactive energy source.

Electric Power Research Institute
Palo Alto, California
Period: January 1990 to January 1991
Topic: Survey of expert system applications in power systems.

USAID – New Delhi, India
Period: August to October 2000
Topic: Greenhouse Gas Pollution Prevention (GEP) Project – Climate Change Supplement.

The World Bank – Africa Energy Section, Washington, D.C.
Period: May to June 2009
Topic: Electric Power System Planning.

The World Bank – Internal Knowledge Series, Washington, D.C.
Period: October 2013 to June 2014
Topic: Electric Power System Planning and Commercial Operations.

SERVICE ACTIVITIES

Service to the University

Electrical and Computer Engineering Department

1. CURRICULUM COMMITTEE, Member - 1984 to 1987.
2. AWARDS COMMITTEE, Member - 1984 to 1985.
3. PC TASK FORCE, Member - 1984 to 1985.
4. GRADUATE COMMITTEE, Member - 1981 to 1984, 1999 to 2001.
5. DEPT. HEAD SEARCH COMMITTEE, Member - 1990.
6. POWER COMMITTEE, Member - September 1979 to present.
7. POWER COMMITTEE, Chairman - September 1987 to August 1990.
8. CURRICULUM REVIEW COMMITTEE, Member - 1990 to 1991.
9. GRADUATE COMMITTEE, Chairman - August 1991 to August 1995.
10. EXECUTIVE COMMITTEE, Member - Sept. 1989 to May 1993, 1995 to 1996.
11. PROMOTION & TENURE COMMITTEE, Member - 1989 to 1990, 1991 to 1992, 2000 to 2001.
12. PROMOTION & TENURE COMMITTEE, Chairman - 1993 to 1994, 1994 to 1995, 1995 to 1996.
13. ECE DEPT. HEAD SEARCH COMMITTEE, Member - 2009.

College of Engineering

1. ENVIRONMENTAL (GREEN) ENGINEERING COMMITTEE, Member - 1993 to 1996.
2. ENGINEERING GRADUATE CHAIRS COMMITTEE, Member - 1993 to 1994, 1994 to 1995.
3. FACULTY EVALUATION REWARD STRUCTURE COMMITTEE, Member - 1994 to 1995.

University

1. REVIEW COMMITTEE, VA Center for Coal & Energy Research, Member - 1988 to 1989.
2. WORLD WATCH STEERING COMMITTEE, Member - 1993 to 1994.
3. ENVIRONMENTAL LITERACY WORKING GROUP, Member - 1994 to 1995
4. UNIVERSITY SENATE, Senator from College of Engineering, July 1994 to June 1996.
5. GRADUATE SPECIALIZATION COMMITTEE, Member - 1995 to 1998.
6. COORDINATING COUNCIL FOR VIRGINIA TECH, Northern Virginia, Member - 2002.
7. COUNCIL FOR RESEARCH DEVELOPMENT, Northern Virginia, Member - 2002 to present.
8. DEAN SEARCH COMMITTEE, College of Engineering, Member, 2002 to 2003.

SERVICE TO THE PROFESSION

Paper/Book Reviewing

1. American Solar Energy Society, 1982.

2. IEEE International Conference on Computers and Applications, Beijing China, September 1983.
3. Prentice-Hall Publishers, New York, 1983 to 1988.
4. IEEE Transactions on Power Systems, 1984 to present
5. IEEE Southeastcon '86, Richmond, Virginia, December 1985.
6. International Journal of Energy Systems, 1985 to 1989.
7. International Journal of Production Research, 1986 to 1991.
8. Elsevier Science Publishing Co., New York, 1986 to 1992.
9. Journal of Solar Energy Engineering, ASME, December 1986 to 1992.
10. IEEE Transactions on Energy Conversion, 1986 to present.
11. International Journal of Energy Research, 1987 to present.
12. International Journal of Approximate Reasoning, February 1990 to December 1993.
13. IEEE Transactions on Systems, Man and Cybernetics, October 1991to December 1993.
14. Canadian Electrical and Computer Engineering Journal, February 1991 to present.
15. International Journal of Electric Power and Energy Systems, October 1991 to present.
16. IEEE Transactions on Aerospace and Electronic Systems, April 1992 to December 1993.
17. Proceedings of the IEEE, April 1992 to December 2003.
18. Electric Power Systems Research, 1992 to present.
19. Electrical Power and Energy Systems, 1993 to present.
20. International Journal of Applied Expert Systems, November 1993 to present.
21. Power Systems Computation Conference, Portugal, 1995 to 1996.
22. IEE Proceedings, July 1995 to present.
23. Cambridge University Press, 1996.
24. IEEE Press Books, 1996.
25. Electric Power Components and Systems, 1998 to present.
26. IEEE Transactions on Microwave Theory and Techniques, 2000.