

CURRICULUM VITAE

PRABODH BAJPAI

Associate Professor,
Department of Electrical Engineering, &
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Educational Qualifications

- Ph.D., Electrical Engineering. (Power Systems), 2008, Indian Institute of Technology, Kanpur (India).
Topic: Development of Market Monitoring System and Swarm Intelligence Based Bidding Strategies in Electricity Markets.
- M. Tech., Energy Studies, 2001, Indian Institute of Technology, Delhi (India).
Topic: Automatic Reactive Power Control of an Isolated Hybrid Power System.
- B. E., Electrical Engineering, 1997, Indian Institute of Technology, Roorkee (India).

Professional Experiences

<i>Duration</i>	<i>Organization</i>	<i>Position</i>
Sept. 2015 till date	School of Energy Sciences and Engineering, Indian Institute of Technology, Kharagpur, WB, India	Joint faculty
July 2014 till date	Electrical Engineering Department, Indian Institute of Technology, Kharagpur, WB, India	Associate Professor
June 2008 to July 2014	Electrical Engineering Department, Indian Institute of Technology, Kharagpur, WB, India	Assistant Professor
July 2004 to July 2005	Power Management Institute, NTPC, Noida, UP, India	Sr. Research Fellow
July 2001 to July 2002	Electrical Engg. Department, Hercourt Butler Technology Institute, Kanpur, UP, India	Guest Lecturer

Publications & Patent

- International Journals : 15
- Conferences / Seminars etc. : 20
- Patent : 01

Research Interests

- Renewable Energy Systems
- Power System Restructuring
- Restructured Electricity Market
- Power System Operation, Control and Analysis

Awards

- a) Bhaskara Advanced Solar Energy (BASE) Fellowship** in School of Electrical Engineering and Computer Science, Washington State University (WSU) Pullman, USA from **May 8, 2015 to August 5, 2015** on the research theme of *Grid Interaction including Smart Grids*.
- b) Sr. Research Fellowship** in the Power Management Institute (PMI), National Thermal Power Corporation (NTPC), Noida, India from **July 2004 to July 2005** on the research theme of *Developing Power Trading Model for Indian Scenario*

Work Experience

- RESEARCH EXPERIENCE

- a) Sponsored Research.**

- 1) Renewable Hybrid Energy Power Plant for Telecom station in Isolated Sites (Vodafone Essar-IIT Kgp Center of Excellence in Telecommunications (VICET), Rs. 95.00 Lakhs) PI: Dr. Prabodh Bajpai ; Co-PI: Dr. N. K. Kishore, Co-PI: Dr. C. Chakarborthy
- 2) Stability and performance analysis of photovoltaics (DST India, Rs. 168 Lakhs), PI: Dr. C. Chakarborthy, Co-PI: Dr. Prabodh Bajpai, Dr. A.K. Sinha
- 3) Reconfigurable Distribution Network ((DST India, Rs. 452 Lakhs), PI: Dr. Prabodh Bajpai, Co-PI: Dr. A.K. Sinha, and Dr. D. Kastha

- b) Consultancy.**

- 1) Inspection cum Survey and Evaluation of Solar PV HLS installed in West Bengal through (Client: West Bengal Renewable Energy Development Agency (WBREDA), Value: 5.50 Lakhs; Period: 3 months, PI: Prof. A. K. Sinha; Co-PIs: Dr. P. Bajpai, Dr. C. Chakraborty, Dr. A.K. Pradhan

- 2) Estimation of technical transmission and distribution losses for NESCO, (Client: NESCO, Odisha, Value: 5.50 Lakhs; Period: 6 months PI: Prof. A. K. Sinha; Co-PIs: Dr. P. Bajpai, Dr. N. K. Kishore, Dr. A.K. Pradhan

- TEACHING EXPERIENCE

Theory/lab subjects taught in the Department of Electrical Engineering, **IIT Kharagpur** since June 2008.

- 1) Electrical Technology
- 2) Measurements and Electronic Instruments
- 3) Non-conventional Electrical Energy Systems (*New course developed*)
- 4) Illumination and Electrical Utility Services
- 5) Renewable and Distributed Energy Systems (*New course developed*)
- 6) Electrical Technology Lab
- 7) Power System Lab (*New experiments included*)
- 8) Measurements and Electronic Instruments Lab
- 9) Renewable Energy Sources (*New course developed*)
- 10) Solar PV Technology and Systems (*New course developed*)
- 11) Energy Systems Lab I & II

- ADMINISTRATIVE EXPERIENCE:

A) Institute Activity

- 1) Associate Professor-in-Charge, Electrical works (since Jan 2014)
- 2) NSS Program officer (July 2011-June 2012)
- 3) Assistant Warden Acharya J.C.Bose hall of residence (Oct. 2011- Oct.2013)
- 4) Laboratory development in School of Energy Science & Engineering

B) Departmental Activity

- 1) Department representative for Training program (Since 2014)
- 2) Building Infrastructure/ Physical facility/ Housekeeping In-charge (2013-2014)
- 3) Faculty advisor for EE students (2008-09 to 2011-12),
- 4) Energy Lab In-charge and Computer control Lab Co-In-charge, (Since 2009)
- 5) Time Table Co-In-charge (2009-2013)

C) Professional Activities

- 1) Secretary and Treasurer, 2011, IEEE Kharagpur Section
- 2) Vice Chair, 2012, IEEE Kharagpur Section
- 3) Chair, 2013, IEEE Kharagpur Section

D) Seminar / Conference Organization

- 1) Registration Co-Chair in IEEE Region 10 Colloquium and Third International Conference on Industrial and Information Systems (ICIIS) held at I.I.T. Kharagpur, Dec. 2008, Participants: 300.
 - 2) Registration Chair in Third International Conference on Power Systems (ICPS 2009) held at I.I.T. Kharagpur in Dec. 2009,
- **Service rendered to other Institutes and Organizations (2014-15):**
 1. Invited Talk in National Seminar on “Renewable Energy Scenario in India” at National Library organized by Engineers’ Welfare Forum, WBPDCCL, 6th September, 2015
 2. Technical session on “Power Transmission and Transmission Line Parameters” for the Management Trainees and other graduate Engineers of CESC Limited on Jan. 7, 2015
 3. Two Short Term Courses on Distribution System Technology for WBSEDCL Engineers from Nov. 18-22, 2014 and Sept. 14-18, 2015
 4. Short term course on Power System Technology for CESC Engineers, Nov. 24-28, 2014
 5. Invited Talk on “Smart grid roadmap for India” at IMI Kolkata, Sept., 10, 2014
 6. Invited Talk in Workshop on "Integration of Solar Power in Precision Farming: Scope and Sustainability", Agricultural & Food Engineering Department, IIT Kharagpur, Nov. 2015

List of Publications

Papers in International Journal:

1. Paresh K. Nayak, A.K. Pradhan, and **P. Bajpai**, "A Three-Terminal Line Protection Scheme Immune to Power Swing", *IEEE Transactions on Power Delivery*, IEEE Early Access, 2015.
2. **Prabodh Bajpai**, and Vaishalee Dash, “Power Management Control Strategy for a Stand-alone Solar Photovoltaic-Fuel Cell-Battery Hybrid System” *Sustainable Energy Technologies and Assessments*, vol.9, pp.68-80, 2015
3. Paresh K. Nayak, A.K. Pradhan, and **P. Bajpai**, "Secured Zone 3 Protection During stressed Condition” *IEEE Transactions on Power Delivery*, vol.30, no.1, pp: 89-96, 2015.
4. Paresh K. Nayak, A.K. Pradhan, and **P. Bajpai**, "Wide-Area Measurement Based Backup Protection for Power Network with Series Compensation", *IEEE Transactions on Power Delivery*, vol.29, no.4, pp: 1970 - 1977, 2014.

5. Ashish R. Hota, and **Prabodh Bajpai**, "Decentralized Operation of Residential Energy Resources in the Smart Grid", *International Journal of Renewable Energy Technology* Vol. 5, No. 1, pp.55-76, 2014
6. Ashish Ranjan Hota, Mahesh Juvvanapudi and **Prabodh Bajpai**, "Issues and Solution Approaches in PHEV Integration to Smart Grid", *Renewable & Sustainable Energy Reviews Elsevier*, Vol. 30, February 2014, pp. 217-229.
7. Zubin Japa Balan and **Prabodh Bajpai**, "Optimal Load Scheduling Within a Microgrid Including Reliability Aspects", *International Journal of Smart Grid and Clean Energy*, Vol. 2, No. 3, pp. 343-349, October 2013
8. Paresh K. Nayak, A.K. Pradhan, and **P. Bajpai**, "A Fault Detection Technique for Series Compensated Line during Power Swing", *IEEE Transactions on Power Delivery*, vol.28, no.2, pp.714-722, April 2013.
9. Ashish R. Hota, **Prabodh Bajpai** and Dilip Pratihari, "Evolutionary Neural Networks for Strategic Bidding in Electricity Markets", *International Journal of Energy Sector Management, Emerald*, Vol.6, Issue 3, Sept. 2012, pp.321 - 342.
10. **P. Bajpai** and Vaishalee Dash, "Hybrid Renewable Energy Systems for Power Generation in Stand-alone Applications: A Review" *Renewable and Sustainable Energy Reviews, Elsevier*, Vol. 16, Issue 1, January 2012, pp. 2926-2939.
11. Ranjay Das, **P. Bajpai** and A. K. Sinha' "Dynamic Interaction of Renewable Hybrid Power Plant with Grid", *Renewable Energy and Power Quality Journal (REPQJ)*, Vol.9, 2011
12. **P. Bajpai**, and S. N. Singh, "Effective Market Monitoring System for Surveillance of Indian Electricity Market", *Special Issue of International Journal of Energy Sector Management*. Vol. 3, Issue 2, September 2009, pp. 275-292.
13. **P. Bajpai**, Shiva Kr. Punna and S. N. Singh, "Swarm Intelligence Based Strategic Bidding in Competitive Electricity Markets", *IET Generation, Transmission & Distribution*, vol. 2, No. 2, March 2008, pp. 175-184.
14. **P. Bajpai**, and S. N. Singh, "Strategic Bidding in Network Constrained Electricity Markets Using FAPSO", *International Journal of Energy Sector Management* vol. 2, Issue 2, March 2008, pp. 274-296.
15. **P. Bajpai**, and S. N. Singh, "Fuzzy Adaptive Particle Swarm Optimization for Bidding Strategy in Uniform Price Spot Market", *IEEE Transactions on Power System*, vol. 22, No. 4, November 2007, pp. 2152-2160.

Papers in Conference/Seminar Papers:

(a) International

1. Ishita Biswas, and **Prabodh Bajpai**, "Decentralized control strategy for PV based DC microgrid with hybrid storage", *Asia Conference on Power and Electrical Engineering (ACPEE)* March 2016.
2. **Prabodh Bajpai**, and Akshat K. Sinha, "Swarm Intelligence Based Optimal Sizing of Solar PV, Fuel Cell and Battery Hybrid System", *International Conference on Power and Energy Systems (ICPES 2012)*, Hong Kong, China, April, 2012
3. **Prabodh Bajpai**, Sowjan Kumar and N. K. Kishore, "Sizing Optimization and Analysis of a Stand-alone WTG System Using Hybrid Energy Storage Technologies," *PEA-AIT International Conference on Energy and Sustainable Development: Issues and Strategies (ESD 2010)*, Chiang Mai, Thailand. 2-4 June 2010.
4. **P. Bajpai**, Prakshan N. P. and N.K. Kishore, "Renewable Hybrid Stand-alone Telecom Power System Modeling and Analysis in HOMER," *IEEE, TENCON 2009*, Singapore
5. **P. Bajpai**, and S. N. Singh, "Impact of Transmission Constraints on Supply-Side Bidding Strategy Using BLP Approach," *IEEE PES General Meeting*, USA, July 2008.
6. **Prabodh Bajpai** and S. N. Singh, "An Electric Power Trading Model For Indian Electricity Market," *IEEE PES General Meeting*, Canada, June 2006.
7. **Prabodh Bajpai** and S. N. Singh, "Electricity Trading in Competitive Power Market: An Overview and Key Issues," *Proc. of International Conference on Power Systems (ICPS)*, Nepal, vol. II, November 2004, pp. 571-576.

(b) National (in India)

8. Ishita Biswas, and **Prabodh Bajpai**, "Control of PV-FC-Battery-SC Hybrid System standalone DC load", *18th National Power System Conference, (NPSC)*, IIT Guwhati, Dec. 2014.
9. Ashish R. Hota, and **Prabodh Bajpai**, "Price-based Indirect Control of Storage Devices in a Smart Grid", *17th National Power System Conference, (NPSC)*, IIT BHU, Dec. 2012,
10. Ishita Biswas, and **Prabodh Bajpai**, "Optimal Sizing of PV-FC-Battery Hybrid System With Energy Based Approach and PSO", *17th National Power System Conference, (NPSC)*, IIT BHU, Dec. 2012.
11. Ishita Biswas, Vaishalee Dash and **Prabodh Bajpai**, "Sizing Optimization of PV-FC-Battery System with Hybrid PSO-EO Algorithm", *IEEE INDICON*, Kochi, Kerala, India, Dec. 2012

12. P.K. Nayak A. K. Pradhan and **P. Bajpai**, "Detecting Fault during Power Swing for a Series Compensated Line", *IEEE ICEAS-2011*, Bubneshwar, India, Dec, 2011.
13. **P. Bajpai**, and Subhash Kumar, "Development and Performance Test of an Automatic Two-Axis Solar Tracker System", *IEEE INDICON*, Hyderabad, India, Dec. 2011
14. P. K. Nayak, J. Ganeswara Rao, P. Kundu, A. K. Pradhan and **P. Bajpai**, "A Comparative Assessment of Power Swing Detection Techniques," *IEEE PEDES-2010*, New Delhi, India, Dec, 2010.
15. **Prabodh Bajpai**, Vaishalee Dash, N.K. Kishore, "Bi-annual Sun Tracking for Solar PV Module Support Structure: Study and Implementation" *16th National Power System Conference*, (NPSC), Hyderabad, Dec. 2010, pp. 56-61.
16. **P. Bajpai** and A. K. Sinha, "Application of Internet to Power System Monitoring, Trading and Transmission Services", *Seminar on IT in Power Sector Performance Upgradation Including Automation*, Council of Power Utilities, New Delhi, India, 2008
17. **P. Bajpai** and S. N. Singh, "Price Area Congestion Management Approach for Restructured Indian Power Market," *Proc. of International Seminar on Power Transmission Research Interests and Challenges*, CPRI, Bangalore, December 2005.
18. **P. Bajpai**, "Power Exchange: Trading Mechanisms," *Proc. of Workshop on Electricity Market in India and learnings from Developed Markets*, New Delhi, March 2005.
19. **P. Bajpai** and S. N. Singh, "Bidding and Gaming in Competitive Power Market: An Overview and Key Issues," *Proc. of Thirteenth National Power System Conference*, (NPSC) IIT Madras, vol. I, December 2004, pp. 338-34.
20. **P. Bajpai**, P. Sensarma and S. Yadav, The Instantaneous Reactive Power Approach for Harmonic Extraction- Pitfalls and Safeguards, *National Power Electronics Conference*, (NPEC), IIT, Bombay, October 16-17, 2003.

- **Patent/ Copywrite:**

1. Patent application (NO. 959/KOL/2013) has been submitted on 19.08.2013 Titled "A HYBRID ENERGY POWER PLANT ADAPTED TO UTILIZE MULTIPLE ENERGY SOURCE"