

Summary Report on PIICON 2016

2016 IEEE 7th Power India International Conference (PIICON) – Conf # 39096 was held from November 25 to 27, 2016 by the Government Engineering College, Bikaner, Rajasthan, India with Dr. Ujjwal Kumar Kalla, Department of Electrical Engineering of the College as General Chair, Prof. Bhim Singh of Indian Institute of Technology Delhi as Patron, & Prof. Subrata Mukhopadhyay of GTBIT, New Delhi as Publication Chair in the principal positions. Ultimately after presentation of accepted papers, in all 331 papers were uploaded to IEEE Xplore. With IEEE Delhi Section & IEEE Industry Applications Society as Technical Co-Sponsors, IEEE PES-IAS and IEEE PELS-IES Delhi Chapters financially cosponsored and organized this Conference at the Lallgarh Palace (*a heritage hotel*) of Bikaner.



A view of Inaugural Session

Detailed Report by the General Chair follows with the Messages of Patron, General Chair highlighting about the IEEE Seventh Power India International Conference organized during November 25–27, 2016 at Lallgarh Palace Bikaner, Rajasthan.

MESSAGE PATRON

Prof. Bhim Singh

Patron, PIICON-2016

Dean, Academics

FNAE, FNA, FNASc, FASc, FTWAS, FIEEE, FIET, FIETE, FIE(I)

CEA Chair Professor

Department of Electrical Engineering

Indian Institute of Technology Delhi

Hauz Khas, New Delhi 110 016, India



MESSAGE

It gives me great pleasure that the prestigious 7th IEEE Power India International Conference 2016(PIICON 2016) is going to be organized during November 25–27, 2016 at Lallgarh Palace Bikaner, Rajasthan. The central theme of the conference has been on “Applications of Power Systems and Power Electronics for sustainability of Energy Systems”. I feel happy to note that the conference has received overwhelming response from researchers in India and Abroad as more than 300 papers are to be presented in the conference.

I congratulate the organizing committee of the conference for putting in all the efforts for organization of PIICON 2016 and hope that this conference is expected to create new grounds in the role played by engineering community in sustainability of power systems.

I extend a hearty welcome to all the dignitaries, resource persons, delegates and student participants. I wish the deliberations are a grand success. Wishing the organizing committee of PIICON 2016, all the good luck for the successful conference.

Prof. Bhim Singh

Patron, PIICON 2016

MESSAGE GENERAL CHAIR

Dr. Ujjwal Kumar Kalla

Senior Member IEEE, Associate Editor IET RPG
Project Director,
Ceramic Electrical Research Development Center, Bikaner (Rajasthan) India
(An Autonomous Organization of Govt. of Rajasthan)



MESSAGE

Welcome to the PIICON 2016 at Hotel " The Lallgarh Palace", Bikaner (Rajasthan) India. It is a matter of great pleasure & honor to host the 7th IEEE Power India International Conference at the Lallgarh Palace Bikaner, Rajasthan, India. On behalf of the organizing committee, I extend a very warm welcome to dignitaries, invited guests, delegates, and industry professional, researchers, policy makers, faculty members and students who are participating in this conference. It has been an honor and privilege to serve as the General Chair of PIICON 2016. PIICON 2016 has brought together a tremendous and rich diversity of authors and speakers from the Universities, Government organizations and industry around the globe to share ideas and new knowledge in the area of Power Electronics, Intelligent Control and Energy Systems. We received over 850 technical papers for PIICON 2016 out of which about 350 papers were accepted for oral presentation in four different tracks after a blind peer review process.

I would like to acknowledge the tremendous efforts of Technical Programme Chairs for their hard work and commitment in coordinating the peer review process and putting together final schedule of technical programme. We are grateful to all our reviewers for sparing their valuable time and efforts to review a paper carefully. I would like to express my sincere thanks to key note speakers Prof. Bhim Singh from IIT Delhi for delivering a talk on the latest Trends in Small Hydro Energy, Prof. Sukumar Mishra for delivering a talk on the Ancillaries in Photovoltaic Cell, and Dr. Jayashri Vajpai for delivering a talk on the Optimal Reconfiguration of Distribution Network using genetic Algorithm. I would also like to thank the speaker's delivering tutorial and plenary talks. I would like to thank the office bearer's of IEEE Delhi section, PES-IAS and PELS-IES Delhi Chapters for providing careful and constructive guidance in successful organizing of this conference. I would like to express my deepest gratitude and regard to Prof. Chandan Chakraborty from IIT Kharagpur for sparing his valuable time and delivering a talk on State of Art of Fault Tolerant Induction Motor Drives.

The success is largely due to our dedicated team of conference, organizing committee members, event management committee members and student volunteers. I am grateful to the conference committee members, student volunteers and research scholars for their hard work, diligence and professionalism in organizing the PIICON 2016. I wish all the delegates, participants and members of the organizing committee a very interesting and enriching experience in PIICON 2016.

Dr. Ujjwal Kalla
General Chair, PIICON 2016

PREFACE

We are happy to bring out the Conference Digest and CD of proceeding of the 7th IEEE Power India International Conference (PIICON 2016) held at THE LALLGARH PALACE - A HERITAGE HOTEL. The conference is financially sponsored by IEEE PELS-IES Delhi chapter and IEEE PES- IAS Delhi chapter and technically sponsored by IEEE Delhi section. The preparation for the conference started one year ago with the help and support of all the committee members of conference. We are thankful to the support provided by their respective organizations. The conference is quite a success in the sense that we had received more than 800 papers from different countries from across the globe. The reviewers for the papers were academicians and professional from India and abroad. The reviewers have done a wonderful work and reviewed the papers within the given time frame. Keeping in view the theme of conference, more than 350 papers are selected for presentation in the conference.

The conference has a total of 54 paper presentation session, 3 keynote addresses, and 1 Invited talk. The conference Digest and CD of the Proceedings contains all the registered and presented papers. We look forward to an invigorating and stimulating three power-packed days at THE LALLGARH PALACE - A HERITAGE HOTEL. The wide range of topics covered in the conference would be beneficial to both industries and academia. We sincerely hope that attending the conference will help the participants in enhancing their technical and professional skill.

We take this opportunity to express our gratitude to the reviewers from India and abroad who spared their valuable time in assessing the papers and giving suggestions for improving the papers. The authors whose papers are not selected will take note of these suggestions to improve their paper and keep pursuing their research activities.

We would like to thank the experts for delivering keynote speeches on the latest topics in the field of Power Electronics, Control and Power systems. We would also like to thank the keynote speaker, experts delivering plenary talks and the session chairs for making sessions interesting and fruitful. Thanks are also due to the members of various committees for their support in making the conference a grand success.

The volunteers and students need special mention for the untiring efforts and tremendous zeal with which they have worked. Every effort has been made for making the conference a success and for the pleasant stay of participants during the conference. We hope that this 'Conference Digest and CD' will be a valuable document to be referred for a long time.

SCOPE AND OBJECTIVE OF THE CONFERENCE

The conference provides an opportunity for researchers, academicians, scientists and professional engineers to present their work, publish their results, exchange ideas and network for scientific and industrial collaborations. The emphasis will be on peer-reviewed papers with high technical quality. The selected, and presented papers will be published in the conference proceedings and will be made available on IEEEXplore®. The conference also provides an opportunity for software/hardware vendors as well as publishers to display their products.

TOPICS

The conference aims to cover the following areas in Power System but not limited to:

Power Systems Operation and Control, Power System Planning, Power Quality & Harmonics, Power System Reliability, Power Systems stability and control, Power System Protection, Integrating distributed generation into the grid Distributed Generation, Renewable Energy sources and storage, Electricity Markets and Power System Economics, Smart Grids, Power Electronics and Drives, Electrical Machines, Energy Management, Sustainable Energy, Industrial Automation and Control, AI Applications in Power Systems, High Voltage, Condition Monitoring, Mechatronics and Embedded Systems, Nonlinear control, Automatic control, Electrical Vehicle. Energy efficiency, Asset management and reliability, High Voltage and Insulation Engineering, Power Systems instrumentation, Wide Area Monitoring and Control, Power Quality, Planning and Operation under deregulated conditions, Power Electronics, HVDC Transmission, FACTS, Electric Drives, Power Systems Communication, Blackouts: analysis, prevention & control, Demand side management, Smart Grid and Cyber Security.

CONFERENCE COMMITTEES

Conference Patron

Prof. Bhim Singh

Dean, Academics

FNAE, FNA, FNASc, FASc, FTWAS, FIEEE, FIET, FIETE, FIE(I)

CEA Chair Professor

Department of Electrical Engineering

Indian Institute of Technology Delhi

Hauz Khas, New Delhi 110 016, India

Conference General Chair

Dr. Ujjwal Kumar Kalla

Senior Member IEEE, Associate Editor IET RPG

Project Director,

Ceramic Electrical Research Development Center, Bikaner (Rajasthan) - 301404, India

(An Autonomous Organization of Govt. of Rajasthan)

TECHNICAL PROGRAMME CHAIR

1. **Dr. Rachana Garg** Associate Professor, Electrical Engineering Department, Delhi Technological University.
2. **Dr. J.B.V. Reddy** Scientist, Technology Mission Division, Department of Science & Technology.
3. **Prof. R.A. Gupta** Professor, Dept. of Electrical Engineering, Malaviya National Institute of Technology Jaipur
4. **Prof. A. P. Mittal** Professor and Head, Instrumentation and Control Engineering, Netaji Subhas Institute of Technology Delhi.

TECHNICAL PROGRAMME CO-CHAIR

1. **Dr. Sanjeev Singh** Associate Professor, Electrical & Instrumentation Engg. Department, Sant Longowal Institute of Engg. & Tech., Longowal (Punjab) India.
2. **Dr. Ashish Shrivastava** Department of Electrical Engineering,, Indian Institute of Technology Delhi

3. Dr. Sabha Raj Arya Assistant Professor, Department of Electrical Engineering, SNIT, Surat, Gujrat , India
4. Dr. Shailendra Sharma Assistant Professor, Department of Electrical Engineering, Shri G. S. Institute of Technology & Science, Indore, India
5. Prof. V. Rajagopal Professor, Deptt. of Electrical Engineering, Hyderabad
6. Dr. Vashist Bist Systems Engineer - Texas Instruments, Bangalore
7. Dr. Rajesh Ahuja Professor, Department of Electrical Engineering, YMCA University of Science & Technology, Faridabad
8. Dr. Neha Adhikari Engineering Officer, CPRI, Noida, India
9. Dr. Tarun Chopra Associate Professor, Government Engineering College Bikaner
10. Dr. Vikash Sharma Assitant Professor , Electrical Engineering Department, Govt. Engineering College Bikaner
11. Dr. Rajesh Kumar Associate Professor, Department of Electrical Engineering, Malaviya National Institute of Technology, Jaipur
12. Prof. Dinesh Birla Professor, Deptt. of Electrical Engineering, Rajasthan Technical University Kota, Rajasthan, India
13. Dr. Shikha Singh Assistant Professor, Department of Electrical Engineering, NIT Delhi
14. Dr. Anmol Ratna Saxena Associate Professor, NIT Delhi
15. Dr. Arun Verma Assistant Professor, Department of Electrical Engineering, Malaviya National Institute of Technology, Jaipur
16. Dr. Jeevanand Seshadrinath Assistant Professor, Department of Electrical Engineering, Indian Institute of Technology, Roorkee.
17. Dr. Sudipta Ghosh Graduate Associate Faculty at UNC Charlotte, USA
18. Dr. Manohar Singh Engineering officer, power system division, CPRI, Bangalore
19. Dr. M. Sandeep NTU Singapore
20. Dr. Perna Gaur Associate Professor, Instrumentation and Control Division, NSIT, Dwarka, New Delhi
21. Prof. D.K. Palwalia Professor & Head, Department of Electrical Engineering, Rajasthan Technical University Kota, Rajasthan, India
22. Dr. Subhash Panwar Assistant Professor, Government Engineering College Bikaner
23. Dr. Phaneendra Babu Bobba Assistant Professor, Shiv Nadar University, Greater Noida, Uttar Pradesh
24. Dr. Madhan Mohan Scientist, ABB, Chennai, India

EVENT MANAGEMENT COMMITTEE

1. Prof. (Dr.) Subrata Mukhopadhyay (Chair)
2. Prof. D.K. Palwalia
3. Dr. Subhash Panwar
4. Kuldeep Singh Rathore
5. Rakhi Suthar
6. Krishnakant Katara
7. Prateek Dixit
8. Dr. Rakesh Morya

9. Pramod Patidar

TRANSPORT AND ACCOMMODATION COMMITTEE

1. Kunal Sharma (Chair)
2. Rakhi Suthar
3. Hemant Kaushik
4. Jaiwin Ghotia

RECEPTION COMMITTEE

1. Manish Tater
2. Pankaj Kumar
3. Jai Narayan
4. Madhuri Mantri