7th National Conference on

Earthing Systems

18-19 September 2014

Venue : Conference Hall of CBIP, Malcha Marg, Chanakyapuri, New Delhi

Organised by

NEW DELHI
ISO 9001 : 2008

Central Board of Irrigation & Power

In association with

International Association on Electricity Generation, Transmission and Distribution (Afro-Asian Region)

Sponsored by

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INTRODUCTION

The Central Board of Irrigation & Power in association with International Association on Electricity Generation, Transmission and Distribution (Afro-Asian Region) is organizing 7th National Conference on "Earthing Systems" on 18-19 September 2014 at Conference Hall of Central Board of Irrigation & Power, Malcha Marg, Chanakyapuri, New Delhi 110021.

AIMS AND OBJECTIVE

CBIP has been organizing conferences on earthing of electric power stations every year now. The last one was held in September 2013 which was much appreciated by delegates who had come from all over India and abroad. CBIP has now again taken initiative to organize this National Conference on **"Earthing Systems" on 18-19 September 2014** with the aim to update the knowledge of professionals about the current techniques in Earthing Systems and to discuss the various problems related thereto. Proceedings of this conference will also help the professionals in improving the performance and reliability of electrical power system, which is the need of the hour.

It is pertinent to mention that Earthing plays an important role in proper operation of generation, transmission and distribution systems. The function of earthing in an electric power system is to (i) maintain the potential of current carrying as well as non-current carrying parts of equipment, apparatus and appliances connected to the system, and (ii) to ensure safety of equipment and personnel and correct operation of protective devices during earth faults. Earthing also provides safety during lightning strikes on equipment or structures and on occurrence of induced voltages and currents on equipments of an electric system. A proper earthing system provides easy and shortest path to the flow of earth fault current without adversely affecting the continuity of service. It also ensures that a person present in the station area is not exposed to danger of electric shock.

The efficacy of an earthing system depends on various factors like resistivity of general mass of earth in and around the area where earth grid is buried and also that of surface layer of soil, duration and magnitude of fault current and grid current, shock duration, the maximum safe current that a human body can tolerate and the permissible values of dangerous voltages that shall arise due to the flow of grid current. Earthing of fence is another issue of importance.

TOPICS

Various topics of interest have been identified for deliberation during this conference.

- Types of earthing and design parameters
- Latest International concepts of Earthing
- New concepts of Earthing – SIGMA Earth; dissipating faults of variable frequencies
- IEEE 80 2000 (Grounding substation earthing)
- Earthing of generating plants, modern electric grid substations, transmission lines, distribution lines, generating plants, and load distribution centers
- Use of computer software for earthing design
- Current for design of earthing system
- Earthing of electronic equipment in power stations
- Role of earthing in protection of installations and equipment from lightening
- Soil resistivity measurements and interpretation
- Requirements of earthing in hilly, and corrosion prone areas
- Testing, installation, and inspection and maintenance together with their periodicity
- Case studies.

Software for (i) computation of grid current and for (ii) evaluation of two layer soil model shall be included with the conference proceedings to be distributed to the participants. In order to make participants conversant with the use of software, practical sessions on the use of the software for evaluation of grid current and two layer soil model shall be held. The focus and the extent of these sessions will be adjusted depending on the need and interest of the participants.

FACULTY

Eminent experts from Utilities, Manufacturing organizations and Academic field shall be drawn as faculty. The following renowned experts in field of Earthing have confirmed to deliver the lecture during the Conference.

Shri Mata Prasad, Founder President CIGRE India, Dr. Hans R. Seedher, Ex-Professor & Head, Electrical Engineering Department, Punjab Engineering College, Ms. Anjuli Chandra, CE, CEA, Shri Sonjib Banerjee, Technical Director - Duval Messien, France and Manav Energy Pvt. Ltd., Shri B.S. Bodh, GM, Electrical/ TS, DFCCIL, Shri Sujeet Mishra, Ex-Director, RDSO, Shri S.K. Ray Mohapatra, Director, Central Electricity Authority, Shri Nihar Raj, Assistant Vice President, ABB Ltd., and Shri K.K. Sarkar, Chief Design Engineer, Power Grid Corpn. of India Ltd.

DATES AND VENUE

The Conference will be held on 18-19 September 2014 in the Conference Hall of Central Board of Irrigation & Power, Malcha Marg, Chanakyapuri, New Delhi - 110 021.

The conference timing will be 9.30 am to 5.00 pm on both the days.

CALL FOR PAPERS

Experts who desire to participate by delivering lectures on different aspects of Earthing including case studies are requested to furnish the write-ups to reach CBIP office latest by 10th September 2014.

WHO SHOULD ATTEND

The conference will be of special interest to:

- Planners, Independent power producers, Operators, Consultants, Electrical Contractors
- Researchers / Academicians, Manufacturers, Power Utilities / Corporations, State Govt. / SEBs, etc.

REGISTRATION

The perspective participants, desirous of attending the conference may register themselves by sending the following details to CBIP along with necessary payments:

Delegate Name: _____

Designation: _____

Organisation: _____

Mailing address: _____

Phone/Fax/E-mail: _____

	Registration fee per participant	Discounted fee for	
		CBIP/CIGRE AARO Members	Students
Amount	**12,000/-**	**10,000/-**	**2,500/-**

Service Tax : 12.36% extra.

The conference is non-residential.

The registration fees includes, working lunch, tea during the programme, a copy of the conference proceedings (including software for evaluation of grid current and two layer soil model) and a copy of the latest **"Manual on Earthing of AC Power Systems"**. Registration fee does not include payment for hotel accommodation or meals except those specifically indicated in the programme. The participants will have to make their own arrangements for boarding and lodging, transport etc. at New Delhi.

OTHER ATTRACTIONS

Scope exists for organizations to be sponsor on lump sum payment with following attendant benefits:

Category	Fee	Delegates free	Coloured advt.
Sponsor	Rs. 2,00,000	10	2 pages
Co-sponsor	Rs. 1,00,000	5	1 page

PAYMENTS

All payments should be made by cheque at par/Demand Draft drawn in favour of **"Central Board of Irrigation and Power"**, payable at New Delhi or by transfer the amount to HDFC Bank; Branch & Address: G-3/4, Suryakiran Building, 19 Kasturba Gandhi Marg, New Delhi 110001; Saving Bank Account No: 00031110004411; Branch /RTG/ NEFT IFSC: HDFC0000003; MICR Code: 110240001; Swift code: HDFCINBBDEL

ADDRESS FOR CORRESPONDENCE

All correspondences relating to event should be addressed to:

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Contact Person : S.K. Batra - M : 9811943812

CBIP's Manual on Earthing of AC Power Systems

The CBIP has been serving the nation with great distinction as a premier institution for dissemination of knowledge, exchange of professional experiences in the field of power generation (including hydro, thermal, nuclear), transmission and distribution of electricity, renewable energy besides various fields of water resources. CBIP makes this knowledge distribution possible through a variety of modes including organizing seminars and conferences at national and international levels; publication of technical documents like journals, manuals, technical reports, proceedings or guidelines, besides giving training to its professionals. Till date about 1500 publications have been brought out by CBIP.

The manual on 'Earthing of AC Power Systems' was firstly published in 2007. To incorporate the latest developments and facilitate the professional engineers associated in the field; this Manual was modified in 2011.

In this Manual a systematic attempt has been made to bring out details relating to Design of Earthing System, Fault current distribution for design of earthing system, special considerations for earthing design under difficult conditions, earthing of electronic equipment in power stations, field measurement of erected earthing system as well as earthing of GIS. This document is outcome of the ceaseless efforts made by each & every member of the Expert Group.

EMINENT KEY SPEAKERS

Shri Mata Prasad is an Internationally known expert and recipient of prestigious Technical Committee award from CIGRE, Paris and also Founder President, CIGRE India. Shri Mata Prasad did his B. Sc (Engg) from BHU in 1954 and served UPSEB as Chief Engineer handling Hydro Generation Project and Thermal Power Plants. He was responsible for developing the 400 kV substations and optimizing the parameters through field tests. From 1984 to 1993 he was with NTPC responsible for 400 kV network expansions interconnecting all the regions of India. During the same period he was also involved in bringing HVDC Back-to-Back and Bulk Power Long distance HVDC transmissions. Presently he is associated with CPRI, PGCIL in various activities of R&D and UHVDC Transmission. He is recipient of several prestigious awards.

Dr. H.R. Seedher received the B.Sc. Engg., M.Sc. Engg., and Ph.D degrees in Electrical Eng. from Panjab University, Chandigarh. Dr Seedher, retired from Panjab Engineering College as Professor and Head of Electrical Engineering Department. The main area of research of Dr Seedher is Power System Grounding. He has published a number of research papers in this area in reputed national and international journals. He has worked as a consultant for design of grounding system for a number of power stations. He has made significant contribution in the writing of the 'Manual on Earthing of AC Power Systems' published by CBIP.

Shri Sonjib Banerjee is Technical Director - Duval Messien known worldwide for hi-tech Earthing solutions & Lightning protection technologies. He has brought new innovative solutions on critical and sensitive electrical installations through his 2 companies- SGI Engineers (India) and Manav Energy Pvt. Ltd. He has been awarded the Man of The Year (2010) for Infrastructure Safety by US-Asia Business Forum in Los Angeles. He has successfully revamped and strengthened earthing systems for various Power, Oil & Gas, Defence organizations in India. He has trained many engineers and corporate teams for updated International Standards for earthing and lightning protection. He is currently researching on Remote monitoring of earthing systems, EMF & electro-statics.

Shri Sushant Kumar Ray Mohapatra is the Director, CEA. He graduated in Electrical Engineering from Sambalpur University, Orissa in 1982 and had his Master's Degrees and MBA from IIT, Kharagpur and Faculty of Management Studies, University of Delhi in 1984 and 2003 respectively. His professional experience of more than 20 years includes Project appraisal, tendering & procurement, design and engineering of EHV substations with the CEA, identification and investigation work for harnessing hydro power potential (micro / mini / small hydroelectric power projects) and assessment of wind power potential with Govt. of Orissa(India) and testing & quality control of PVC & XLPE cables of 11kV and 33 kV grade with M/s NICCO Orissa Ltd., India.

Ms. Anjuli Chandra, is Chief Engineer, CEA. She is B.E. Electrical and MBA from Punjab University, Patiala. She has work experience of over 28 years in different capacities in the various formations/Divisions of CEA, DERC and PSEB. She has acquired technical expertise during her service in the field of planning, design, monitoring, supervision and administration. She is actively involved in the formulation of construction standards for lines of 33 kV and also involved in the field of Distribution for loss reduction, improvement in quality and reliability of power.

Shri Bhupender Singh Bodh is an IRSEE Officer of Indian Railway and presently working in Dedicated Freight Corridor Corporation of India Ltd. (DFCCIL) as General Manager – Electrical/TS. He has nearly two decades of experience in Railway electrification and associated systems like SCADA, Protection & Earthing. Two of his research paper on 25 kV solid core Insulators and high rise OHE for double stack container has been published in international journal. He is a qualified Chartered Engineer (CEeng) from IET, UK and is a Senior Member of IEEE, USA.

Shri Sujeet Mishra, He belongs to the Indian Railways Service of Electrical Engineers from the 1994 Exam batch. He has been instrumental in assimilation and further development of new generation of motive power components and has had significant role in the development of two classes of electric locomotives-currently being the workhorses of Indian Railways. In his current assignment he is responsible for the power system installations for feeding traction power to the trains, a responsibility he holds, as Director in the Research, Designs & Standards Organisation under the Ministry of Railways. He is an active contributor to the standardisation process through his association with BIS and IEEE.

Shri K.K. Sarkar is B. Tech (Hons.) in Electrical Engineering (1995) from Indian Institute of Technology, Kharagpur. Since joining as executive trainee in 1995 he is with POWERGRID serving mostly in corporate substation engineering division and is presently Chief Design Engineer at POWERGRID. He is mainly involved in design, engineering and standardization of substation layout & equipments at voltage levels of 11 kV, 33 kV, 66 kV, 110 kV, 132 kV, 220 kV, 400 kV and also trained from Canada in 800 kV substation design. He has wide experience in designing of earthing system at difficult conditions and has published paper on earthing system.

Shri Nihar Raj is the Assistant Vice President - Technical, ABB Ltd. He received his engineering degree from M.S. University Vadodara. Since 2001 he is working with ABB Ltd, substation design department. He has designed several air & gas insulated substations ranging from 11 kV to 400 kV. He is also involved for design of 800 kV AIS. His area of expertise includes Power Systems & Substation Design.