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From the Chairman's Desk

HOW SMART ARE OUR POWER GRIDS?



The Country is racing towards significant development and in the process identified the Infrastructure development as one of the prime movers and rightly the government has given a prominent place in the priority allocations. As we know, Power Sector is identified as one of the key sectors in Infrastructure development. Power Grids are the linkage Transmission Networks between the Generation Units and the end usage. At present we are witnessing many pitfalls with inability to provide intelligent systems in the Grid network.

Smart Grid technologies enable the utilities to be intelligent and smarter to have advantage of allowing the transmission and receiving data across the territory.

They help managing Power Demand from consumers in response to power supply conditions.

Generating and Control the flow of power at Distribution level, metering, billing and associated data management becomes easier and efficient. Management of T & D outages, mobile workforce logistics, Supervisory Control and Data Acquisition becomes handy. Asset Management in T & D, monitoring and reporting and control the flow of power from generation to end use would be more efficient.

To disseminate the developing technologies and practices in Smart Power Grids, an All India Seminar on "Smart Power Grids" is conducted by A P State Centre on 15th and 16th July, 2009. The Seminar attracted a large number of delegates apart from a number of speakers and authors of papers.

The Seminar is graced by leading personalities in the Power Sector. Shri H S Brahma, IAS, Secretary to Power, Government of India was the Chief Guest. Shri S Padmanaban, Program Director, South Asia Regional Initiative for Energy, USAID, New Delhi and C V J Varma, FIE, President, Council of Power Utilities, New Delhi participated in Key roles. The details of the event are given in the inside pages of this issue. The details of the technical sessions, Recommendations from the Seminar are sent to Ministry of Power, Govt. of India and other authorities.

A P State Centre continues its effort to bring out many more such events to the best of its ability to help the engineering fraternity to be abreast with the developing technologies.

Dr S Nagabhushana Rao
Chairman

Chairman

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Prof T Narayana, FIE

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VENUE FOR PROGRAMMES :

"Visvesvaraya Bhavan" Khairatabad, Hyderabad - 500 004. Phone : 040-2331 4969 Fax : 040-2331 4024

E-mail : ieiapsc@gmail.com Website : www.ieiapsc.org.in

The Institution of Engineers (India)
Andhra Pradesh State Centre

All India Seminar on “SMART POWER GRIDS”

15th & 16th July, 2009

The All India Seminar on “*Smart Power Grids*” was organized on 15th and 16th July, 2009 in commemoration of 108th Birthday Celebrations of **Dr K L Rao**, Hon.Life FIE and Former Union Minister. **Shri H S Brahma**, IAS, Secretary, Ministry of Power, Government of India graced the occasion as Chief Guest and inaugurated the All India Seminar on 15th July, 2009. In his Inaugural Address, Shri Brahma paid rich tributes to Dr K L Rao for his yeomen services to the country and the State of Andhra Pradesh. The Secretary stated that the present installed capacity of 150,000 MW of power will be increased to 500,000 MW by the year 2020. Transmission utilities particularly PGCIL are already taking action for expansion of Transmission network at 400 KV and 765 KV levels to suit the capacity additions projected. The Secretary of Power also stated that the existing five regional grids would be integrated and National Power Grid would be functional by the year 2012. The Union Secretary appreciated the theme of the Seminar and said that the Smart Grid Technology would be developed for implementation in India. The scope of the existing schemes like APDRP (Accelerated Power Development Reform Program) will get extended to cover Development of “Smart Grid Technology”. He stressed the need to concentrate on development of renewable energy sources. Shri H S Brahma, IAS desired that all relevant points may be discussed in the Seminar and the recommendations of the Seminar be sent to the Government for consideration. During the Inaugural Session, **Shri S Padmanaban**, Senior Advisor, USAID, New Delhi delivered the informative Keynote Address. After paying rich tributes to Dr K L Rao, Shri Padmanaban stated that energy demand in India is expected to grow at an annual rate of nearly 6%. Over next 10 years in tandem with projected economic growth rate of similar scale. The Indian energy sector continues to struggle to overcome chronic energy shortages due to inadequate fuel supplies and inefficiencies in T & D. Shri Padmanaban has defined the Smart Grid as a secure integration of two infrastructures - the electrical and information infrastructures. He stressed the need for upgradation of existing infrastructure and designing, development and installation of smart metering for implementation of Smart Grid Technology. He particularly referred to the DRUM (Distribution Reforms upgraded Management) programme which is a USAID supported bilateral programme. This programme aims at improving the quality and reliability of power distribution in selected urban and rural distribution circles. Shri Padmanaban referred to the benefits the Smart Grid Technology can offer to the consumers with the introduction of time of the day tariffs. The Keynote Address was well received by the audience.

Er C V J Varma, FIE, President, Council of Power Utilities, New Delhi graced the Inaugural Function and addressed the gathering. He referred to development of Smart Grid Management Solutions by organizations like Areva T & D and Microsoft Corporation. Er Varma stated that the functions of “Smart Grid” include ‘self-healing’ of power system, consumer empowerment system security, Generation Central operations among the wide range of power generating stations which include renewable sources and asset optimization for minimal operation cost. He made special mention about ‘Smart Meters’ which should allow for integration of all utilities and should be capable of monitoring down to plug level and allow remote control of heating and other appliances using internet and mobile phones. Er Varma stated that there are three technology categories of advanced controls-distributed intelligence Agents, Analytical tools (Software algorithms and high speed computers) and operational applications (SCADA). Er Varma also stated that the Geographical Informative System (GIS) Data enables the Smart Grid to make automate decisions thus avoiding human interference on switching on and off operations. Apart from



The Chief Guest, Shri H.S. Brahma, IAS addressing the gathering

the Keynote Address of Shri Padmanaban and address delivered by Er C V J Varma, twenty technical papers were received from highly qualified authors drawn from high profile organizations like CPRI, Bangalore, VIT University, Vellore, BHEL, New Delhi, Areva, T & D, New Delhi, NRLDC, New Delhi, Himachal Pradesh Power Corporation (HP), BHEL, R & D, Hyderabad, Synopsys, Corp. USA, Infosys, Bangalore, CERC, New Delhi, ABB, Bangalore, TERI, Bombay and research scholars and professors of some leading institutions in the country. The meeting was attended by highly learned delegates from the reputed organizations belonging to Power Sector. Delegates from many engineering colleges participated in the Seminar. Engineers from A P Transco and A P Genco also participated actively in the deliberations.

Earlier, **Er Taji Krishna Rao**, FIE, Seminar Organizing Secretary welcomed the gathering. Dr S Nagabhushana Rao, FIE, Chairman IEI, A P State Centre presided over the Inaugural Function. Er R Radhakrishna Murthy, FIE, Past Chairman, IEI, APSC and Co-Chairman, Organizing Committee addressed the gathering on Life and Achievements of Padmabhushan Dr K L Rao, Hon. Life FIE. Er K Balarama Reddi, FIE, Chairman, Technical Events Committee briefed about the Seminar. Er K G Srinivasulu, Vice President, APSEB Engineers’ Association proposed Vote of Thanks.

A Panel Discussion was held under the Chairmanship of **Er C V J Varma**, FIE, President, Council of Power Utilities, New Delhi. Eminent experts from Academia and Industry presented their views at the Panel Session.

VALEDICTORY SESSION:

The Valedictory Function was held on 16.7.2009. **Dr S Bhattacharya**,



The Chief Guest, Dr. S. Bhattacharya, IAS addressing the gathering

IAS, Chairman and Managing Director, A P Transco was the Chief Guest at the Valedictory Function. Dr S Bhattacharya appreciated the successful organization of the All India Seminar. He was pleased that many young engineers and also engineers from A P Transco and A P Genco took part in the Seminar. He referred to the proceedings of the Seminar presented by Prof. C Radhakrishna and recommendations of the Seminar presented by Er K Balarama Reddi and said that he would do his part for implementation of the recommendations.

Er G L Rao, FIE, Past President, IEI was the Guest-of-Honour at the Valedictory Function. While addressing the gathering, Er G L Rao expressed satisfaction for successful completion of the Seminar. He explained to the well attended gathering of engineers about the Engineers Mobility Forum and its International activities. Er. Rao stated that great efforts made by IEI at various levels to get the

Institution of Engineers (India) admitted as a Member of EMF. This would benefit Indian Engineers to a great extent. Earlier, Er K Balarama Reddi, FIE, Former Chairman, APSEB and Chairman, Technical Events Committee presented the recommendations of the Seminar. He suggested that Govt. of India may appoint Central Power Research Institute Bangalore as Nodal Agency to coordinate the activities related to development Smart Technology in India.

Dr C Radhakrishna, Former Director, UGC-ASC, JNTU and Co-Chairman, Technical Events Committee presented the summary of proceedings of the Seminar. He described the range range of technical papers received from various leading organizations. The above Seminar is organized in association with Council of Power Utilities, New Delhi and APSEB Engineers Association.

July 20, 2009: Er Satnarayan Singh, FIE, Former Additional Secretary to Govt. Irrigation and CAD Dept., A P. delivering a Popular Lecture on **“Remodelling Nagarjunasagar Canals – A Point of View”** said that this Popular Lecture traces briefly the background of the formulation of Nagarjunasagar Project across the Krishna jointly by the erstwhile governments of Andhra and Hyderabad in 1954. Water was released in the canals for the first time in 1967 when the project was partially completed. Funds from the World Bank were obtained in 1976 to complete the project. The project was originally planned to provide supplementary irrigation in Kharif season to about 8lakh ha (20lakh ac). Taking advantage of surplus water in the river due to slow development of irrigation facilities and less utilisation of water by the upper riparian states (Maharashtra and Karnataka) the farmers in the NSP command raised a variety of crops regardless of the ‘localised’ pattern notified by the state govt.,. Paddy was the preferred crop which was raised even during Rabi in parts

of the command. Due to keen competition amongst the farmers for water for the crops they chose to raise, much more water was required than allocated by the state. Often, the farmers resorted to objectionable and unfair means to obtain water as needed according to their perception, particularly when adequate releases to meet their demand were not made by the irrigation department. They sometimes breached canals, damaged control and regulatory structures and lifted water directly from the canals. The system therefore deteriorated due to such interventions. For want of timely repairs and maintenance due to inadequate budgetary support, the problem was further aggravated. As a result, the canals are under performing. Compared to the earlier estimate of about 8lakh ha (20lakh ac) of cropped area (wet, ID and rainfed) under the command these are irrigating only about 8lakh ha (20lakh ac) although using 30-35 per cent more water than allocated. Besides, some areas still continue to be without water. The state govt. has therefore planned to remodel/modernise the system with an investment of about Rs.5000cr to improve its performance. This Lecture suggests some radical reforms needed and important steps to be taken by the Govt, before undertaking the exercise, including a thorough evaluation of the existing system by an independent outside agency. It highlights the fact that for want of field information the earlier project was based on assumed data on irrigation efficiencies, crop water requirements etc. However, provision was made in the project proposal for the establishment of a large network for measurement of water flows and an elaborate monitoring system to collect, analyse and produce a reliable database for remodelling the system 20years later by which time development in the upper states would have been completed. More than 40years have passed but very little, if at all, has been done in this regard in the NSP. The remodelled project would once again be based on assumed data for its design. Suggestions are made for important changes in the present practices and policies to be taken up before initiating action to remodel the project so that it does not fail to perform. Emphasis is laid in this paper on management interventions and coordination with the agricultural experts to achieve the objectives of remodeling. For social justice all farmers in the command are to be treated on equal footing distributing irrigation supplies amongst them equally, equitably and fairly. The existing practice of crop and season bound ‘localisation’ procedure which is discriminatory and is the basic cause of frustration among the farming community should be abandoned. The need for a firm and unified ‘Policy on Irrigation’ in the public sector supported by comprehensive legislation (‘Irrigation Act’) is stressed.

Er Ponnala Lakshmaiah, Hon’ble Minister for Major Irrigation, Govt. of Andhra Pradesh was the Chief Guest. In his address he has explained the developmental activities being taken up by the Government of Andhra Pradesh. He has stressed that Government has taken a lot of initiatives for effective utilization of water. Government is keen in implementing Micro Irrigation, where water can be used more efficiently. Further appreciated that the A P State Centre has been doing yeomen services in all the fields of developmental activities initiated by the State Government by rendering valuable advice on all the projects and also requested the A P State Centre to extend further support. **Er D Hanumantha Chary**, FIE, Imm. Past Chairman, IEI, APSC presided over the Popular Lecture, in his opening remarks the A P State Centre will always be with the Government in all the endeavours in the overall development of the State. He has also explained in detail the efforts put in by IEI, Headquarters in getting full Membership of Engineering Mobility Forum for India. He also explained the benefits to the engineering fraternity in getting full membership of EMF. Earlier, **Prof T Narayana**, FIE, Hon.Secretary, IEI, APSC welcomed the gathering.



The Chief Guest, Er Ponnala Lakshmaiah addressing the gathering others from L-R : Er. Satnarayan

PROGRAMMES AUGUST, 2009

Date & Time	Event	Chief Guest / Speaker
04.08.2009 Tuesday 1730 hrs.	Popular Lecture on "Infrared Thermography and its Applications on Buildings"	Dr D S Prakasa Rao, FIE Retd. Professor, University College of Engg, OU & Professor, The University of the West Indies
10.08.2009 Monday 1730 hrs.	Lecture on "Working with a Giant"	Er N S N Murthy, FIE General Manager (Retd.) BHEL, Hyderabad.
22.08.2009 Saturday 1730 hrs.	Popular Lecture on "Social Engineering on going Attacks.....Prevention"	Er A Jagannatha Reddy, FIE Vice President, Supply Chain Management M/s Matrix Laboratories Ltd., Hyd.

Engineering Staff College of India

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CEP'S FOR THE MONTH OF AUGUST 2009

I Water Resources Development Division (WRD)	
1 Irrigation Systems Management	03 – 07
2 Watershed Management	17 – 21
3 Disaster Mitigation & Management in Water Resources Sector:Cyclones & Floods	27 – 29
II Environment Management Division (EMD)	
1 Design and Layout Planning of Water Distribution Network with Software Applications	04– 06
2 Environmental Issues in Mining Sector – Legal and Statutory Requirements (As per MoEF Guidelines)	19 – 21
3 Corporate Social Responsibility – A Triple Bottom Line Framework (Social, Economical and Environmental Concerns)	27 - 29
III Civil/Transportation Engineering Division (CTE)	
1 e-Procurement in Engineering Projects	03 – 07
2 Soil Investigation & Ground Improvement Techniques for Infrastructure Development	11 – 13
3 Leakages and Water Proofing Treatment in Buildings	19 – 21
IV Power & Energy Division (PED)	
1 Electricity Act 2003 – Competition in Supply – Challenges in Open Access Regulatory and Market Perceptions	03 – 07
2 Pilferage of Electricity Detection and Prevention	11 – 13
3 Failure Analysis of Power and Distribution Transformers	17 – 21
4 Tariff Philosophy and Regulatory Practices, Issues and Challenges	24 – 28
5 Project Development, DPR Preparation, Appraisal & Schemes Implementation(DRUM)	26 – 28
V. Management & Technology Division (M&T)	
1 Personality Development For Engineers and Executives	04 – 06
2 Team Building for Engineers and Executives	18 – 20
3 Vibrations and Balancing of Rotating Machinery in Heavy Industries and Power Plants	27 – 29
VI. Quality, Productivity & Environment Division (QPE)	
1 Safety in Manufacture, Storage, Handling and Use of Petrochemicals & Explosives	10 – 12
2 Total Quality Management in Thermal Power Stations	10 – 14
3 Total Quality Management for Excellence in Engineering Education	17 – 19
4 ISO 9001:2008 Lead Auditor Training	31 Aug – 04 Sep
VII. Information Technology Division (IT)	
1 IT Applications in Power Sector (Specific to Transmission)	11 – 14
2 Workshop on Backup and Recovery Technologies	19 – 21

General Information :

- Venue for all the above programmes is ESCI Campus, Hyderabad, unless mentioned otherwise
- The Faculty consists of experts from industry and academia besides that of ESCI.



For details please write to :

Dr. S. Nagabhushana Rao, FIE, Director
Engineering Staff College of India
Old Bombay Road, Gachi Bowli, Hyderabad - 500 032
Phones : 040-23000465/23000466 Fax : 040-23000336
Email : esci_ic@yahoo.com & esci_ic@escihyd.org
URL : www.escihyd.org

Attention please.....

Members desiring to stay in the Guest Rooms of A P State Centre, IEI – we wish to inform that Our Guest House Service Charges are decreased from 9th May, 2009 onwards. Kindly make a note and please intimate (including number of days of stay and time of arrival) through e.mail or Fax only to the undersigned, well in advance for reservation or for any other information.

For Member	AC	Rs.400/- per day
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25th National Convention of Civil Engineers

and National Seminar on **"Climate Change Abatement – Role of Civil Engineers"**,
Hyderabad-AP, 23-24 October, 2009.

For further details: Ph : 040-23314969,
www.ieiapsc.org.in

CALL FOR NOMINATIONS

42nd ENGINEERS' DAY CELEBRATIONS

(in commemoration of 149th Birthday Celebrations of **Bharat Ratna Sir Mokshagundam Visvesvaraya**)
42nd Engineers' Day Awards

1. Bharat Ratna Sir Mokshagundam Visvesvaraya Award (One)
2. Engineer of the Year Awards (Three)
3. Young Engineer of the Year Awards (Two)

L&T Dr A Ramakrishna Young Engineer Award (One)

For prescribed nomination forms and further details:
Please visit our website: www.ieiapsc.org.in

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