



NEWS LETTER

The Institution of Engineers (India)

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*"46 Years of Relentless Journey towards
Engineering Advancement for Nation-building"*

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May - 2011

Er. A. S. Satish. FIE
Chairman

Er. T. Ananthapadmanabha. FIE
Honorary Secretary and Editor

From the Chairman's Desk:



Dear Member,

Chairman and Committee members feel encouraged by the improved response shown by members through their attendance and active participation in IEI, Mysore Technical and other activities. The programmes conducted exclusively for Student and technician members were also well received. In the coming months we hope to conduct Seminars / Workshops for working Engineers, Student and Technician members towards advancement of Engineering Sciences among our members. We are also making efforts to organize Technical Visits to R & D centres, Training Institutes and prominent Industries of the region and the Schedules will be intimated to members well in advance. In addition we at the Centre will also be making every efforts to organize many useful discussions on Current Topics, People and City friendly Initiatives. Kindly Extend your Co-operation and make our efforts purposeful.

Looking forward to your continued co-operation. With warm regards,

A.S.Satish.

Chairman, IEI, Mysore

8TH MAY 2011 : DISCUSSION ON "IS NUCLEAR POWER IN OUR BEST INTERESTS"



Chief guest Prof.J.R.Lakshmanarao interacting with audience

Inaugurated by Prof.J.R.Lakshmanarao Retd.Professor of Chemistry, Manasa Gangotri, Mysore University

Speakers: Dr.Vishnu Kamath Professor of Chemistry, Bangalore University
Sri.Y.B.Ramakrishna Engineer & Environmentalist
Dr.S.G. Vombatkere. FIE Engineer & Environmentalist Convenor-NAPM, Mysore,
Presided by : Er.A.S.Satish.FIE, Chairman,IEI,Mysore

A Brief on the discussions : Environmentalists and Activists in the city have questioned the safety of nuclear technology in the wake of the Fukushima disaster in tsunami-hit Japan and sought transparency and information on the Rare material plant(RMP) in Mysore.

The discussion was organized by the IEI, Mysore, National Alliance of People's Movements (NAPM) and the People's Union for

One day workshop on managerial skills for working Engineers
Saturday 11th June 2011 from 10.30 am to 5.00 p.m.

Civil Liberties(PUCL). speakers underlined the dangers of Nuclear Technology and the veil of Secrecy surrounding it.

Major General(Retd). Dr.S.G.Vombatkere an Engineer and environmentalist, stressed the need to seek information from the authorities on the RMP, Which is located about 15-20 km from the city. He pointed out that the RMP on the outskirts of the city processed radio active materials mined from Jharkhand, which was transported to Mysore in the form of Uranium hexafluoride(UF6) and enriched using Centrifuges.

Er.Vombatkere also stated that " If the enrichment is by 4% , it is used in nuclear fuel rods and if the enrichment is 40% , it is used for the manufacture of nuclear bombs. But no processing is 100% clean, and the residue or the waste generated by the processing is being dumped in Arabhittu forest, which is heavily secured. The radio active material could pollute ground water, the run-off during monsoon could reach Krishna Raja Sagar, which is downstream. This poses a threat to the supply of potable water as city is supplied water from the KRS and hence it is necessary that the authorities allay public fears arising out of the RMP's activities" .

Vombatkere said the RMP could be a potential target for terrorists strikes and any radio active leak could affect about 20 lakh people in the vicinity, including 11 lakh people in Mysore. Dr.Vombatkere drew attention to the fact that there were ancillary units to a full fledged nuclear plant, and although the RMP was not a nuclear plant but an ancillary unit, the dangers were no less. He urged the RMP to conduct a public hearing to dispel concerns instead of being secretive. The concerns were regarding the safety aspects of the RMP and a test or investigation to ascertain the amount of radio activity in soil, air and water in the vicinity.

The crux of the discussion centered around the safety issues

and environmental hazards arising out of harnessing nuclear energy. Dr.Vombatkere said that contrary to popular belief , nuclear energy was not cheap,clean or environment friendly. J.R.Lakshmana Rao, a retired professor of Chemistry at the University of Mysore traced the growth of the nuclear industry in the world since its discovery, while Lakshminarayan of PUCI called for transparency on nuclear issues , saying that the environmental cost overrode any perceivable benefits. Prof.Vishnu Kamat , Professor of Chemistry at Bangalore University gave a broad picture of Uranium mining and its processing and said that nuclear issues posed key ethical problems and not technological problems as radioactive waste could come to haunt future generations. Mr. Y. B. Ramakrishna Engineer Environmentalist spoke on alternative sustainable energy resources like Solar, Biogas, Biodiesel and Wind Energy solutions as alternative to nuclear energy.

9th May 2011 : Technical Lecture on " An Introduction to Quantum Information and Quantum Computation" by Dr.R.Srikanth, Asst.Professor in Physics Poorna prajna Institute of Scientific Research (PPISR), Bangalore



Dr.R.Srikanth was felicitated by Chairman IEI, Mysore

A Brief on the presentations : A conceptual, non-mathematical introduction to quantum information theory and quantum computation was presented. The exponential rate at which transistors are placed in an integrated circuit suggests that by the year about 2015, quantum effects will be inevitable, and the manufacturing techniques that engineers have mastered in the fabrication of the circuits will become invalid. These are effects whose properties fall in the domain of quantum theory, the physical theory governing the behavior of objects at sufficiently small scale. What we have realized since the past twenty years is that quantum effects bring their own novel benefits in terms of how information can be processed.

Some of the new restrictions brought by quantum mechanics are that unknown states cannot be cloned, that trying to access the information in an unknown state can disturb it, and that two distinct states cannot always be distinguished. These negative rules result from the quantum phenomenon of superposition, which allows an object to be simultaneously in a counter-intuitive state where it exists simultaneously in two states that we normally consider as mutually exclusive. Interestingly, these very restrictions form the foundations of quantum cryptography, since they make quantum states sufficiently delicate that an eavesdropper cannot monitor it without causing a detectable disturbance.

Superposition of correlations in a multi-partite system, which is called entanglement, brings novel ways of communication, such as quantum teleportation. We also show how superposition enables Feynman parallelism, the ability of a system to exist in a state of simultaneously computing many instances of a problem, which is at the heart of why quantum computers can solve some problems much faster than ordinary, classical problems. The exponential speed-up obtained

in Shor's prime factorization algorithm is an example.

"Green Energy Seminar" 10th May-2011

The Institution of Engineers(India), Mysore Local Centre conducted a GREEN ENERGY SEMINAR in association with YESJ EXPERT, a US based MNC.



Er. M. S. Vijayashankar past Chairman IEI, Mysore launching the Mysore Energy Products

A Brief on the presentations : The GREEN SEMINAR conducted by The Institution of Engineers (India) and Yesj Expert at Mysore was one of a brain-storming and knowledge sharing session under the guidance of IEI, Mysore, Chairman Er. A. S. Satish. The event was inaugurated by Er. M. S. Vijayashankar, Past Chairman, by launching Solar and LED products of MYSUR Energy. Solar lanterns and torches along with Garden lights were kept on display. MYSUR Energy a manufacturer and solution provider in Renewable Energy, Solar and LED products, is expanding their suite of products and their operations globally. MYSUR Energy is an international Renewable Energy company that has set up a base in Mysore in their pursuit to provide solutions in green energy, and power projects.

Mr. Suresh Sreenivasaiah, Global Director of YESJ Expert, a US based Consultancy firm, spoke on Green Energy, LED lighting and Green Buildings, and how these can be leveraged in day-to-day life, corporate, public and home environments. The advantages and limitations of the various Green energies were reviewed by various eminent industry champions and senior engineers. Solar Energy is one of the most commonly available energy that can be tapped by anyone, though the costs seem little high but with the subsidy this is a good option in the long run. Further the reduction of solar energy price from where it was, the necessity for electricity and the flow in of advanced technologies is making solar the common man's electricity and would be soon seen as a normal electricity at each house-hold. Dr. T. Anantharamaiah, Hon. Secretary of IEI shared the Wind Energy technical parameters and the possibility of making it a reality in nearby locations, and the acceptance of LED lightings at the Palace premises.

Er. M. S. Vijayashankar highlighted the concepts of Green Building and its elements such as atmosphere, materials, Water efficiency, renewable energy, recycling, were highlighted. The availability of green building standards and material/supplier standards are being available to ensure the customer chooses the right approach in the construction of green building to make the building construction an easy process, comfort living, low operational cost, economical, healthy living and nature friendly with optimum utilization of resources. and stressed the adoption of reusing the demolition materials for construction.

Mr. Suresh made additional presentations on Green IT, the energy wastage in normal scenario, the advanced concepts and fundamentals to keep the energy consumption low and leverage the new technologies to efficiently run business and reduce the carbon emission thus contributing to a greener environment. Various scenarios such as e-learning, architecture design, processes that can help reduce the carbon emission and also improve the business at lightning speed were some of the highlights.

Mr. Sai Prakash, Managing Director of Erin Consultants, gave an excellent coverage of how Mysore can be the point of CleanAir transportation by leveraging Two-wheeler Electric Vehicles and it would be a very good proposition to have the blend of Electric Vehicles and charge-points in Mysore, that would promote green auto industry reducing the carbon level and increase employment opportunities in Mysore. With the participation of the local entrepreneurs and the technology support, some of the attendees found it viable to take this concept to the next level. Interested folks were invited to join hands in this Clean Air transportation program.

Mr. Harsha, a Shared Services expert shared the knowledge of Shared Services & outsourcing, and how best the local resources and partnerships can be leveraged to grow their existing business in the green world. While there was a concern on sharing of intellectual information, the ways to handle such conflicts and ensure a fair-partnership which can eventually lead to better growth, were discussed. There was a brain-storm on collaboration and new approach to adopt the concept of Shared Services. The session was quite interactive with the attendees too concerned about the green activities to reduce the energy wastage, alternate energy adoption and recycling & reuse resources. Mr. Suresh highlighted the availability of Green Funds for Green projects that can be availed by entrepreneurs/corporates, and Joint-venture programs in partnership with Municipal corporations, and the various green projects that Yesj Expert has been working in the Solar & Wind projects globally. Issues such as challenges, current state on energy policies were also discussed.

It was a thought-provoking knowledge session with a precise combination of green energy, green buildings, Clean-Air, shared services, Green IT topics and ways to adopt the same and realize the benefits. The attendees including the senior engineers found it very beneficial and expressed their further interest to have such seminars and interactions that can make Mysore one of the best cities for green environment and healthy living. Yesj Expert expressed support to such social causes and partnerships with elite Institutions such as the Institution of Engineers (India) in the process of making Mysore a better place to live in.

17th May 2011 :WORLD TELCOMMUNICATION AND INFORMATION SOCIETY DAY. Theme: "Better Life in Rural Communities with ICTs"



A Brief on the presentations

Er.B.V.Balasubramanyam, AMIETE Senior Principal, Regional Telecom Training Centre, Mysore, briefed the audience on the efforts BSNL is making to reach out rural masses through its networks and the benefits percolating to last person in the remotest corner of India towards better education, health and even business prospects leading to economic recovery.

Mr.R.Thyagarajan Executive Engineer (EI), Telecommunication Division, KPTCL, Bangalore made a powerpoint presentation on INTEGRATED EXTENDED SCADA and profile on SCADA IN KPTCL.

Karnataka Power Transmission Corporation Limited, has a long history of providing power, dating back to 1902 when it began producing electricity at Shivanasamudram, Bangalore. KPTCL is now mainly vested with the functions of transmission of power in the entire state of Karnataka. It operates under the license issued by Karnataka Electricity Regulatory Commission (KERC). KPTCL purchases power from KPCL and other independent power producers. KPTCL in turn sells to five regional power distribution companies. To transmit and distribute power in the state, it operates nearly 1042 substations over 32,000km of transmission lines with voltages 66kV, 110kV, 220kV and 400kV. The 33 kV substations are operated and owned by distributions companies.

SCADA:

Supervisory Control And Data Acquisition (SCADA) systems employ a wide range of computer and communication technologies. Advances in these technologies have helped in improving the effectiveness of SCADA. Gone are the days when SCADA operated in a closed environment and was utilized for data acquisition and visibility was partial. The need for real time visibility and its graphical tools has driven technology and engineers to customize tools on the SCADA system which has immensely help System operators to effectively manage the entire power grid. The de-regularization of electric utility activities to make them more has necessitated a requirement for the SCADA data to be available to many external bodies.

Typically, components of SCADA systems are geographically spread- RTUs in substations, Data processing equipment & user interface in control centers, and remote MMI at various places like corporate head quarters. Data transfer in hierarchical control center implementation also is part of SCADA systems.

With phenomenal growth of demand for electric power; the power distribution networks are undergoing rapid expansion and becoming more and more complex making study of security, reliability and load management difficult without implementing sophisticated automation of data logging as well as control and operation.

SCADA IN KPTCL:

As a part of automation initiative, KPTCL had a total of 63 RTUs covering 220kV, 400kV and generating stations and later added additional 21RTUs with main control centre during the early 1998. The communication was based on VSAT with own hub with an uptime more than 99.95 %. Based on this experience and performance satisfaction with benefits deriving from automation, KPTCL decided to extend and integrate the SCADA system to cover all transmission, generation and distribution substations numbering to total 1200 substations.

INTEGRATED EXTENDED SCADA:

Integrated Extended SCADA network includes a total of 16 control centers including Back up control centers, regional transmission control centers (Area Load Dispatch Centers - ALDC) (6 Nos.), Distribution Control Centers (DCC) (5 Nos.) and DA / DSM Control centre. The Master Control Centre comprises two Control Centers viz. Master Control Centre-1 (the State Load Dispatch Centre - SLDC) and Master Control Centre-2. The DA / DSM control centre is provided to have an exclusive monitoring and control system for Bangalore city. The Masters Control centers have respective backup control centers with full functionalities to handle any emergency / disaster conditions.

KPTCL is at present utilizing Satellite based Telecommunication network for Real time data acquisition & Voice. The network consists of a HUB station installed at Master Control Center & earth station VSATs installed at substations & generating stations in the state. The uniqueness of the network is the deployment of VSAT Technology for SCADA activity, for the first time by any Electrical utility in the world. This network, having a critical up time of 99.7%, has replaced PLCC network, used for voice & SCADA, hitherto.

This network called Vidyut Net has been implemented by using VSAT technology, which is highly reliable & cost effective. The network

operates in Extended 'C' Band and uses Transponder # 17 of INSAT - 3A. SCPC and DAMA technology is deployed in the initial phase of the SCADA implementation & later Multi Frequency Time Division Multiple Access (MFTDMA) Technology is used.

SCADA FEATURES: The Master control centre has separate servers for SCADA Application, Data Base and Energy Management System applications all with full redundancy. The basic functions of required data acquisition from remote stations, supervisory control, alarm processing, logical alarm and sequence of events functions are provided by SCADA applications server. Apart from these load shedding and historical data processing functions are implemented. All required analog data (electrical quantities) and status (digital) from all electrical substations of utility right from 33kV level are available. Data pertaining to 11kv feeders of all substations are also captured as these are required for distribution management system. One of the important features to meet the regulatory requirements is to provide Availability Based Tariff (ABT) information to all the distribution companies buying power from transmission utility. This also applicable for generating stations selling power to transmission utility. Energy Billing & Energy audit is also envisaged in the project which brings in accountability & helps in curbing pilferage of electricity.

The KPTCL IES network is unique in this part of world that having implemented world's largest electric SCADA with remote stations more 1000 RTUs. Designed for integration to future systems by incorporating standard protocols, the system will be integrated to various Distributions automation projects undertaken by the Distribution companies thus taking a major leap towards making the Power Grid in Karnataka a smarter one. Er.N.S.Chakravarthy.FIE Former Ex-Officio Additional Secretary, DOT, GOI moderated the session.

31ST MAY 2011 FORE NOON: WORLD NO TOBACCO DAY -2011



Prof. C. V. Nagaraj along with the Dignitaries Inaugurated the programme in an Unique way by replacing the tobacco plants by Fruit bearing plants. Er. H. R. Babu Satyanarayana through his illustrations explained ill effects of Tobacco consumption. Sri. Mysore math made a detailed power point presentation on all aspects of Tobacco growth, consumption and its ill effects on Health and economic prosperity. Chairman IEI, Mysore Er. A. S. Satish presided over the function.

31ST MAY 2011 : Technical Lecture on the Subject: "The Digital Consumer Revolution" BY Sri.Nagarajan Srinivasan Associate Vice President and Head, Infosys, Mysore



Dr. D. S. Guru proposing vote of thanks to guest speaker Sri. Nagarajan Srinivasan

The Institution of Engineers (India), Mysore Local Centre, in association with computer society of India, Mysore chapter had organized a technical presentation on the subject "The Digital Consumer Revolution by Sri.Nagarajan Srinivasan Associate Vice President and Head, Infosys, Mysore, on May 31st at the Institution premises, JLB Road Mysore.

Delivering the lecture Sri. Srinivasan said that for a majority of Indians, mobile phones are the gateway to the Internet as the use of laptops is restricted to only a small section of society in the country. Srinivasan noted that broadband penetration was low in India and this was because not all sections of society perceived the use of laptops or didn't want to invest in them. Hence broadband or Internet penetration in the country could be made possible through mobile phones which is becoming indispensable. He said the Government of India plans to achieve a broadband penetration of 40 per cent of the population in the next few years, he added.

Srinivasan also noted that mobile phone usage had a fairly good rural reach. Referring to the growing popularity of social networking sites, Srinivasan pointed out that Facebook and Twitter played a prominent role in the Egyptian revolution that overthrew Hosni Mubarak. Even In India, the anti corruption crusade of Anna Hazare Generated a huge following on social networking sites.

The Digital revolution would surely usher in a sea change and also revolutionise health care, education and business opportunities specially in the rural areas. Srinivasan said citing a shift from the Industrial Age to the Connected Age through digital consumer revolution. Er. A.S. Satish Chairman IEI, Mysore presided over the function. Dr. D.S. Guru Chairman CSI, Mysore chapter proposed hearty vote of thanks.

PROGRAMME

ಕುವೆಂಪು ವಿಶ್ವವಿದ್ಯಾನಿಲಯದ ವಿಶ್ರಾಂತ ಕುಲಪತಿಗಳಾದ ಡಾ. ಕೆ. ಚಿದಾನಂದಗೌಡರ ಆಯ್ಕೆ ಚುಟುಕುಗಳ ಕೃತಿ ಬಿಡುಗಡೆ ಸಮಾರಂಭ ಭಾನುವಾರ ಜೂನ್ ೧೨, ೨೦೧೧ ಬೆಳಿಗ್ಗೆ ೧೦.೩೦ ಗಂಟೆಗೆ

Technical lecture on **A CUBIC MILE OF OIL** by Er. Y. B. Ramakrishna
Tuesday 21st June 2011 at 5.30 p.m.

ALL ARE INVITED

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To,



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