October 2003
(VOL 51, NO. 2)

The IEEE MONITOR

PUBLISHED BY THE NEW YORK SECTION OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

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(See Details Inside)

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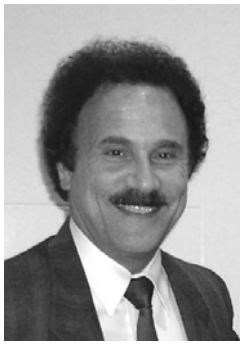
PERIODICAL
TIME SENSITIVE MATERIAL

Chairman's Column



Northeast Power Outage

The blackout of August 14, 2003 had a serious impact on: public utilities responsible for generating, transmitting and distributing the electrical power we use daily; transportation companies responsible for transporting people to and from work, and schools; communication companies charged with keeping us all connected; small businesses; large corporations; governmental agencies; banks, hospitals, colleges and universities. This event highlighted the significance of electric power in running our everyday lives.

Electricity and our electrical system derived from the work of eminent scientists and engineers, such as Faraday, Tesla, Edison, Steinmetz, Westinghouse and many others. The generation, transmission and distribution of electrical power originated from a complex infrastructure designed by many engineers. This intricate and complex system must be monitored, controlled and maintained by engineers. Electrical engineers play a vital role in running our everyday lives. Think about all the electrical devices you use on a daily basis from the alarm clock, coffee maker, microwave, radio, television, refrigerator, electric lights, computer, fax machine, printer, telephone, vacuum cleaner, electric toothbrush, etc. Engineers and scientists designed all these devices. If you were affected by the blackout of August 14th you know how your life revolves around the use of electricity. It's time for society to recognize the value and importance the electrical engineer plays in making this world a better place to live.

The coverage of the blackout by the press underscored the media's lack of understanding of the technical issues involved. Most of the people interviewed were administrative officials or politicians. They "talked around" the real technical issues that could have shed some light on the underlying problems. Our dependence on a reliable and safe electric distribution system is too important to leave in the hands of politicians, administrative officials or profit driven companies. We must as a society realize the prominence engineers; scientists and other technical people play in operating and maintaining our complex electrical system. The consequences of not listening to electrical engineers, who are the experts, may lead to future problems and more blackouts.

IEEE Elections

At the Region 1 Board of Governors Meeting this past August, Lou Luceri, a past Region 1 Director, discussed the voting statistics in past IEEE elections. Unfortunately the statistics are not good. Less than twenty percent of Region 1 engineers voted. This year I'd like to improve on this statistic. I'm urging my fellow New York Section engineers to vote! **Your single vote will count! Elections in the past have been won by as little as 35 votes.** Please mark & mail your ballots and be counted in the IEEE elections.

We have two excellent candidates running for executive office this year. The positions are IEEE-USA 2004 President-Elect and IEEE Region 1 2004 Director-Elect. Candidate for IEEE-USA 2004 President-Elect is Dr. Gerard A. Alphonse, who is the current Region 1 (Northeastern US) Director. He is a long time advocate of the engineering community in this region and a dedicated volunteer.

Dr. Alphonse holds the BSEE, MSEE, and PhD (Electro physics) degrees from New York Polytechnic University. He joined the RCA Laboratories (now Sarnoff Corporation) in 1959, where he made major contributions in super conductive devices, holographic data storage, acousto-optics, ultrasonic transducers, optical recording, tiled displays, and Photonics. As program manager in Photonics, which he invented in 1986 he led the development of the world's highest performance super luminescent diode, a key component in fiber optic gyroscopes, low

coherence imaging, and external cavity lasers. His commitment to engineering education covers 16 years as adjunct faculty, Electronic Physics Department at LaSalle University's Evening Division, including four years as Department Head. His commitment to professionalism covers over 30 years of volunteer leadership in IEEE. He is author and co-author of over 120 technical papers and holds over 50 US patents. Dr. Alphonse has received four David Sarnoff Outstanding Achievement Awards, an IEEE Region 1 Award, and the IEEE Millennium Award. He is a Fellow of IEEE, a member of the honorary societies Eta Kappa Nu, Tau Beta Pi, Sigma Xi, and the Science & Arts Committee of the Franklin Institute. He is currently IEEE Region I Director and serves on the IEEE, RAB, and IEEE-USA Boards.

Candidate for IEEE Region 1 2004 Director-Elect is Dr. Charles Rubenstein, a tenured professor of engineering and information science at the Pratt Institute Graduate School of Information and Library Science. He has a doctorate in Bioengineering from the Polytechnic Institute of New York and a masters degree in Library and Information Science from Pratt Institute. Dr. Rubenstein is a senior member of the IEEE. His major service to IEEE has been as a member of the IEEE-USA Board of Directors and Operating Committee (2003), a member of the IEEE-USA PACE Committees since 1999 (currently serving as Vice-Chair), a member of the Technical Activities Board (2003), a member of the Engineering Management Society Board of Governors since 1988 (currently serving his fourth term as vice president - member relations) and a member of the Region 1 Board since 1992 (currently serving as Area B Chair (2002-2003), Electronic Communications Coordinator (1992-2003) and member of the METSAC Council (2002-2003)). He has also served as the Region 1 Chapters Coordinator (1992-1999), and Student Activities Coordinator (1982-1984). He served two terms on the Electro Board of Directors (METSAC Council representative 1983-1987 and 1999-2001) and in several New York Section ExCom capacities including member-at-large (1994-present). His leadership service to the IEEE includes Member-at-large of the IEEE Publication Boards (2000-2002), IEEE Educational Activities Board Life Long Learning Council member, and EAB Society Product Committee Chair.

As Chair of the New York Section, I whole-heartedly endorse the candidacy of Dr. Gerard A. Alphonse for IEEE – USA 2004 President-Elect and Dr. Charles P. Rubenstein for IEEE Region 1 Director-Elect.

Robert M. Pellegrino

The New York Section seeks active volunteers to fill the following positions:

Consultant Network Chair

Instrumentation & Measurement Chair

Social Implications of Technology Chair

Women in Engineering Chair

EE Unemployment Rate Drops Slightly
Still Ranks Above Other Professionals

WASHINGTON (11 July 2003) - The unemployment rate for U.S. electrical and electronics engineers (EEs) dropped in the second quarter, but remains well above the rate for other high-tech professionals, according to data compiled by the Department of Labor, Bureau of Labor Statistics (BLS). After climbing to an unprecedented 7.0 percent in the first quarter, the EE jobless rate fell to 6.4 percent, still more than twice the rate for all managers and professionals (3.1). Mechanical engineers were unemployed at a rate at 3.1 percent, civil engineers at 3.9 percent and industrial engineers at 5.9 percent. "The data suggests the EE unemployment rate went down because new jobs were added, not because of a reduction in the unemployed EE population," IEEE-USA President-Elect John Steadman said. "Just who these new jobs are going to is not clear, although we're concerned that many of them are being filled by temporary guest workers."

The IEEE
MONITOR

Vol. 51 No. 2 October, 2003

Postmaster: Send Address change and returns to the IEEE MONITOR, c/o Membership Services, IEEE Service Center, PO Box 1331, Piscataway, NJ 08855 (ISSN 0164-9205)

Published monthly, except for June, July and August, by the New York Section of the Institute of Electrical and Electronics Engineers, Inc., 24 Chamber Lane, Englishtown, NJ 07726. Phone (212) 460-6363, Fax (212) 529-0463. IEEE Corporate Office, 3 Park Avenue, 17th Floor, New York, NY 10016-5997
Annual subscription: $4.00 per member per year (included in annual dues) for each member of the New York Section: $10.00 per year for non-IEEE members
All communications concerning The IEEE MONITOR should be addressed to: The IEEE MONITOR, 24 Chamber Lane, Englishtown, NJ 07726 or e-mail: monitor-editor@ieee.org.
Responsibility for contents of articles, papers, abstracts, etc. published herein rests entirely with the authors, not the editor, Publication committee, IEEE or its members.
Periodicals Postage Paid at New York, NY and additional mailing offices.

The election meeting is scheduled for Wednesday, November 12, 2003 beginning at 5:30 PM in Pete's Tavern, 129 East 18th Street on Irving Place, Manhattan, New York. Voting will take place at 6:00 PM.

The Nominations Committee of the IEEE New York Section proposes the following slate for election as officers and elected chairs of the Executive Committee for the period: January 1, 2004 to December 31, 2004.

Other Chapters of the New York Section are welcome to participate.

Officers

Chairman -	Benjamin Schall
Vice Chair Chapter Operations -	Robert P. Noberini
Vice Chair section activities -	Paul J. Sartori
Treasurer -	Stanley Karoly
Secretary -	Neil Weisenfeld

Elected Committee Chairs

By Laws -	William N. Coyne	Chapter Organization -	Phil Paterno
Managing Editor -	Michael A. Miller	Historian -	Melvin Olken
L. R. Planning -	William L. Perlman	Publications -	Dr. Frank E. Schink
Special Events -	Ralph Tapino	Web Master -	Harold Ruchelman

Tappan Zee Subsection

Chairman -	Bernard Gollomp
Vice Chair -	Dr. Lauren Balmelli
Treasurer -	Warner Johnston
Secretary -	Dr. Shu-Ping Chang

PES / IAS New York & Long Island Chapter

Chairman -	Michael A. Miller
Vice Chair -	Neil Weisenfeld
Treasurer -	Bill Montgomery
Secretary -	Ralph A. Mazzatto

Sr. Member at Large – John Pascu
Jr. Member at Large – John Michelsen

Editorial

Made In China, Korea, Malaysia, Vietnam, Mexico, India, Singapore, Canada….
When can you expect to see this column written by a ghost in some Asian country? I bet you wouldn't be surprised. It is the same story, told in different words. Our current recovery is called 'jobless' and in the past 10 years just how many engineering jobs have traveled to other ports? Whether it is automobiles, TVs, software development, phone solicitations, or technical support – it all comes from another country. The engineers in the US work hard and play by the rules, not so in other areas where software piracy is the thing, and copying is a way of life. We hear the term "dumping" used so often, that its secondary meaning of discarding inferior goods in our market place is now a common phrase. The effect is the elimination of competition and in the case of US made products, like TVs, can only be disastrous for the US worker. But nothing is said about technical support and engineering. The aftermath of the North American Free Trade Agreement is the loss of some 700,000 American manufacturing jobs and a trade imbalance (2002) totaling $435.2 billion. The largest gap is with China and growing. Software development used to be a strong hold, large screen TVs were protected, now more jobs are at risk. We compromise American ideals and independence with global trade policies that allow corporations to manufacture overseas where wages are low and benefits non-existent. Engineers face the same dilemma only it is subtler. It is time to take a stand, contact your representative, and insist that both the ITC and the U. S. Commerce department act aggressively on imports from those countries were products are being sold for as much as 1/3 less than their fair market value and engineering compromised by low salaries and no benefits.

Tetra Society
of North America

The Tetra Society…Working to Make Communities More Accessible, But We Need Your Help!

Brian is a New York resident and has MS. He loves being outdoors and spends every spare moment out on his garden. Brian's MS is worsening and he can no longer garden with ease. He has asked the Tetra Society of North America for help – he needs an assistive device built, specifically for him that would allow him to once again pursue his favourite pastime.

Shannon is paraplegic and is very dedicated to keeping herself physically fit. She needs adaptations to her exercise bike so that she can keep her feet on the pedals.

Matthew is an extremely bright individual but has not been able to read a book independently for two years. He is quadriplegic and ventilator dependent. He is one of the many people with significant disabilities searching for ways of increasing their personal independence and self-reliance through Tetra.

These people can be assisted if volunteers can be contacted. Tetra's new chapter in New York City requires engineers, designers, technicians and handypersons willing to volunteer their services. All of the assistive devices created by Tetra are volunteer-driven, which keeps costs at a minimum and results high.

If you are interested in adaptive technology and would like to help someone in the New York area, contact the New York City chapter coordinator, Eddy Ehrlich, at (718) 398-3133.

To find out more about Tetra's activities throughout North America, log on to www.tetrasociety.org or call 877-688-8762.

Calendar of Upcoming Events

October 8, 2003 (Wednesday) 5:30 PM - 7:30 PM
PES / IAS Program Committee and the Edison Engineering Society presents – "New Technology for a New Grid" Presented by Patrick M. Duggan, P. E.
Con Edison Executive Dining Room, 4 Irving Place, 19th Floor, New York, NY
For information or Reservation call : Michael A. Miller @ 212 460 4911,
Alan Osborne @ 212 460-6690, or John Michelsen @ 914 968-8400

October 15, 2003 (Wednesday) Tappan Zee Subsection Meeting. Date, time, and speaker to be announced by Bernard P. Gollomp, Subsection Chair – 845 359-8434

October 16, 2003 (Thursday) 5:30 PM – 8:00 PM
Vehicular Technology Society – " Technology Sharing Forum features – Smart Card Technology in Transit & Advanced Public Transportation Systems (APTS)" Presented by Eric Hartgrave.
Hosted by Cisco Systems, Inc. 5th floor, One Penn Plaza, NYC.
For information or Reservations call: Mr. Christopher Pacher at 718-422-9922 or by email at cpacher@r160.ltk.com

October 23, 2003 (Thursday) 5:30 PM - 7:30 PM
PES / IAS Technical Discussion Group and the Edison Engineering Society – Square D presents – "ASCO Switching"
Con Edison Executive Dining Room, 4 Irving Place, 19th Floor, New York, NY
For information or Reservation call : Sukumar Alampur @ 212 563 7400 or
Jim Nucito @ 732 380 1100 Ext. 4149

November 19, 2003 (Wednesday) Tappan Zee Subsection Meeting. Date, time, and speaker to be announced by Bernard P. Gollomp, Subsection Chair – 845 359-8434

The following New York Section members were elected to receive Region 1 Awards.

Jack A. Buchsbaum, P. E.
Bradley P. Craig, P. E.
David K. Horn
David M. Weiss

IEEE THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

VTS – October 16th Technology-Sharing Forum

Join the NY Section of the Vehicular Technology Society at their Technology-Sharing Forum featuring

Smart Card Technology in Transit

Presented By John Swanson of
LTK Engineering Services

&

Advanced Public Transportation Systems (APTS)

Presented By Eric Hartgrave of
Siemens Transportation Systems –
Integrated Local Government Systems Division

October 16, 2003, 5:30 to 8:00 PM

Hosted by: Cisco Systems, Inc. 5th Floor
One Penn Plaza, New York City

- John Swanson will discuss smart card technology and the movement in transit to development regional and standalone smart card systems and the integration of transit smart cards into other public and private systems.

- Eric Hartgrave will discuss how GPS technology and data/voice communication networks allow for precise automatic vehicle location, computer-aided dispatching, route and schedule management systems for transit.

Advance registration is required for admission.

- There is a $35.00 charge for the forum and refreshments, Checks Payable to IEEE NY Section
- IEEE Members and non-members may register for the October forum.
- Mail To: Mr. Ramdane Benferhat
  NYCT - Rail Transit Operations Support,
  370 Jay St Room 323B
  Brooklyn NY 11201
- If you are an IEEE member, please provide your membership number.
- Additional information regarding program specifics can be obtained by contacting Mr. Christopher Pacher at 718-422-9922 or by e-mail at cpacher@r160.ltk.com.

New York Section Distinguished Service Award
Nominations Due October 31, 2003

The IEEE gives many awards, some to people, some to organizations. For many awards, section people support other people who make the final decision.

However, the New York Section has a Special Awards Committee that selects, every year, without needing approval from others, the person who receives the Section's Distinguished Service Award.

IEEE members should submit information to the Committee about the candidates they nominate.

The physical token of the Award is a plaque, typically presented at the Section's annual Awards Dinner, at which the recipient and a friend are guests of the Section.

Purpose and Qualifications

The purpose of the Award is to honor a Section member who has made contributions of exceptional distinction. The contributions may include "service to the Section, industry, profession, or community" and must be "visible, definable, significant, and sustained."

Any IEEE New York Section member of Member Grade or above is eligible to receive the Award.

Recipients

2003 Harold Ruchelman
2002 Kenneth E. Vought
2001 William N. Coyne
2000 George E. Gilmore
1999 Jalal Gohari
1998 Frank P. Farinella
1997 Frank E. Shink
1996 Roger K. Sullivan
1995 Amos E. Joel
1994 Philip M. Paterno
1993 William Terry
1992 Robert W. Gillette
1991 Anthony B. Giordano
1990 Jack L. Jatlow

Nominations

Nomination forms for 2003 are due on Friday, October 31, 2003. Instructions and a form to fill out are available at http://www.ewh.ieee.org/r1/new_york/ to help you nominate a candidate. A completed form, or a request for instructions and a form, can be sent by surface mail or, preferably, by email to:

Mr. Peter Mauzey
Lucent Technologies, Room 2K-304
101 Crawfords Corner Road
Holmdel, NJ 07733-3030
p.mauzey@ieee.org

H-1B and L-1 Visas Accelerate Offshore Outsourcing By Chris McManes

The presence of guest workers in the United States on H-1B and L-1 visas has accelerated the offshore outsourcing of high-tech work and jobs, said Dr. Ron Hira, chair of the IEEE-USA Research and Development Policy Committee in June testimony before the House Committee on Small Business.

The trend has increased the "movement of work offshore as temporary workers in management positions outsource work to overseas colleagues, and as temporary workers who have returned home use their knowledge and connections in the U.S. market to competitively bid for outsourced work," Hira said.

"A policy shift away from reliance on guest workers and toward permanent immigration would help minimize this problem."

The hearing, chaired by Rep. Donald Manzullo (R-Ill.) and televised on C-SPAN, was held 18 June to help answer the question, "The Globalization of White-collar Jobs: Can America Lose these Jobs and Still Prosper?" Continued on page 11.

Professional Activities Information Page

This page dedicated to member professional activities information

More about PACE

One activity of the PACE network that I did not mention in my last column is the CARE project. The Congressional Advocacy Recruitment Effort (CARE) is a new major PACE project and all IEEE members are encouraged to participate in it. This is a grass-roots lobbying program with the goal of having US members pay a visit to U.S. Senators and Representatives in their home or Wash. DC office sometime during the Congressional year. Resources and tools are available from IEEE-USA which include briefings on specific issues and an informational packet and training aids. We are asking all US members to take a pledge to become involved in this effort.

Calendar of Upcoming Events. The following are proposed Section activities. Dates and locations will be announced in future issues when they become available. Please plan to attend at a meeting or seminar.

October 8: General Meeting
November 12: General Meeting
November TBD: Financial Seminar

If you have suggestions on areas of professional activities that interest you please contact me.

Peter Greco PACE Chairman
Tel.: 212-614-3357 Fax: 212-529 5237
email: p.j.greco@ieee.org

IEEE EMPLOYMENT ASSISTANCE

IEEE-USA's Job Service Site:
http://jobs.ieeeusa.org/jobs/services/
The IEEE-USA's Job Service Web Site brings together number of job-search resources in a single location. The site includes the following:

IEEE Job Site: This highly rated job listing service was replaced by a new internet-based job site, and is sponsored by IEEE-USA and IEEE Spectrum. The site allows the active and passive job seeker more control over the recruiting process. For more details go to **www.ieee.org/jobs.**

IEEE-USA Resume Referral Service: Put your resume for maximum exposure! A link to the registration and other services.

Entry-Level Employment Service Site: If you are an engineering graduate, recent graduate, of IEEE Student Member looking for the first job this is one of the best places to begin your career. Special entry-level employment services include job listings, links to company sites and job-search tips and techniques.

The Engineers Guide to Lifelong

EMPLOYMENT AND CAREER ENHANCEMENT PUBLICATIONS

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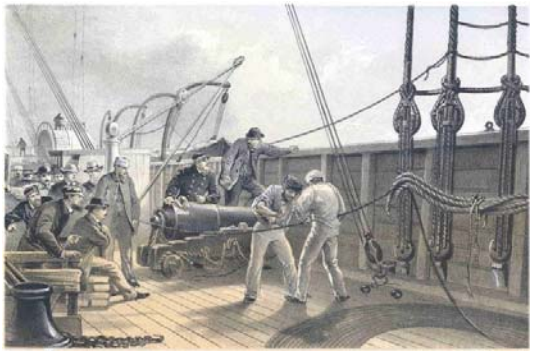
Engineering Careers into the 21st Century
IEEE Members: $20.00

The Transatlantic Cable

Twelve years, five attempts at laying the cable, and the confidence and expertise of financiers, electrical engineers, scientists, and sailors were invested in setting up a transatlantic telegraph before the venture succeeded. But, on July 27, 1866, a permanent electrical communications link was established between the old and new worlds, altering for all time the personal, commercial, and political relations between people on both sides of the Atlantic.



Splicing the Cable

Cyrus Field, who had made enough money in the paper trade to allow him to retire at age 35, adopted the cable project in 1854. After being assured by Samuel Morse and Matthew Maury, a leading oceanographer, that the project was feasible, Field was ready to seek financial backers. Four of New York's richest men-Chandler White, Peter Cooper, Marshall Roberts, and Moses Taylor-joined Field to found the New York, Newfoundland, and London Telegraph Company. Their first step was to connect St. John's, Newfoundland, and New York City in 1855, through a combination of submarine cables and overhead lines. Field and nine associates then formed the American Telegraph Company, which soon acquired Newfoundland, New Brunswick and the United States' eastern seaboard as its territory. A clear path from Canada to Florida now existed for the messages which would come over the proposed transatlantic cable.

The next several months were spent establishing yet another company, choosing the cable design, manufacturing the cable, finding additional financial backers, and securing agreements of support from both the British and US governments. On August 5, 1857, the American steam frigate *Niagara* and the Royal Navy's steamer *Agamemnon* left Valentia Bay, Ireland, each with half-an-ocean's length in her hold. After laying about 400 miles of cable, however, the line snapped and could not be recovered from the ocean floor.

During the next ten months, improvements were made to the machinery used to play out the cable, a better insulating compound was developed, William Thomson (later to be knighted Lord Kelvin) invented the mirror galvanometer, which was used for improved detection of the signals coming over the cable, and still more capital was raised. The cable was reloaded onto the *Niagara* and the *Agamemnon*, and the ships left Valentia Bay on June 10, 1858. This time, only 160 miles had been laid when it broke.

The Great Eastern

Field pushed to try again immediately. The two ships met in mid ocean on July 29th, spliced the cable, and steamed off in opposite directions, laying the cable as they went. Both reached their respective ports in Newfoundland and Ireland on August 5, 1858; transatlantic

communication by telegraph was a reality. Telegraphic greetings were exchanged between Queen Victoria and President Buchanan. However, the glory was short-lived. The cable went dead on September 18th.

Cyrus Field 1815-1896

This was the worst setback in the story of the transatlantic cable. It was nearly impossible for Field to find backers for another attempt. And, with the United States sliding towards a civil war, the British government was reluctant to increase its support of the project for fear of implying an alliance with the industrial North over the agricultural South. Seven years were to pass; a great war would be fought and won by the North, before Field had all that he needed-capital, a new cable and a ship-to try again.

On July 23, 1865, the leviathan *Great Eastern* began paying out the new cable which had been manufactured according to much stricter technical specifications. But, once again, the line accidentally snapped and was lost-this time only 600 miles from the Newfoundland coast. Another cable was constructed, the *Great Eastern* was again called into service, and on July13, 1866, the cable laying began. Two weeks later the cable was landed at Heart's Content, Newfoundland and began operating. The *Great Eastern* then returned to the spot where the 1865 cable had been lost, retrieved it from the ocean bottom, spliced it, and paid out the remaining 600 miles back to Newfoundland. By September 8, 1866, not one but two telegraph lines were carrying messages across the Atlantic.

This event has been deemed an electrical engineering milestone and, in recognition, a plaque was dedicated by IEEE at Heart's Content, Newfoundland on June 15, 1985.

The home of Cyrus Field, on the northern edge of Gramercy Park in New York City, is also recognized with a dedicated plaque marking the site.

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H-1B and L-1 continued

In a widely cited Forrester Research analysis, at least 3.3 million white-collar jobs and $136 billion in wages are expected to shift overseas by 2015. Lower labor cost is the principal reason. A comparison done by the World Bank showed that a $70,000 salary for a U.S. engineer has the same purchasing power as a $13,580 salary for an Indian engineer or a $25,690 salary for a Hungarian engineer.

"Global competition accelerates creative destruction, which can be good for innovative and market-based economies overall, but terribly difficult for displaced communities and individuals," said Bruce Mehlman, assistant secretary for technology policy, U.S. Department of Commerce. "America must never compete in the battle to see who can pay their workers the least, and it will take sustained innovation to ensure we don't have to."

METROPOLITAN ENGINEERING SOCIETIES COUNCIL, INC.

in the interest of the engineering profession

P.O. Box 1981, New York, New York 10008-1981

LET ENGINEERS DEAL WITH ENGINEERING PROBLEMS

The failure of the power system on August 14 must lead us to consider how to minimize or avoid similar failures in the future. To do so we must recognize that the system is an enormous technological endeavor governed by socially constructed rules.

The generation, transmission and distribution of electric power is far more involved than operating a flashlight. Commercial power cannot be stored (as in a battery). That power derives from a complex infrastructure that might be grasped by the general public in outline, but not in its working details. A lifetime of study and investigation is needed to understand the interaction of the demands and supplies of different regions, true costs of capital, energy (fuel, nuclear, water power), maintenance, and standby or overcapacity.

Our electrical system derives from the work of eminent SCIENTISTS AND ENGINEERS, such as Edison, Tesla, Westinghouse, Pupin, Steinmetz and many others. This intricate system must be planned, monitored and maintained by engineers and not by general administrators.

Whatever the merits of deregulation, it has clearly had an impact on the system. Our dependence on a reliable and safe electric distribution system is too great to leave in the hands solely of profit-oriented companies. The consequences of not listening to the experts: ELECTRICAL ENGINEERS, are dire, indeed.

As a society dependent on technology, we must give prominence to ENGINEERS, SCIENTISTS and other technical people. We can ill afford to relegate such people to the background, to be consulted only when a catastrophe occurs. The media, in particular, need to educate the public and our elected officials on the critical importance of these individuals to our standard of living and our pre-eminence as a world power.

The coverage of the blackout underscored the media's general lack of understanding of the technical issues. Few of the people interviewed were ENGINEERS. Many were administrative officials, and the questions asked of them skirted the real technical issues that could have shed light on the underlying problem. This situation is a metaphor of how technical issues have become vested in the hands of non-technical people.

In other areas we give primacy of responsibility to specialists. On civil rights we listen to lawyers. On dealing with SARS, we listen to physicians and epidemiologists. In the building of a new bridge we would expect to listen to (CIVIL) ENGINEERS – and we, therefore should do likewise for our electrical grid. We must give primacy of responsibility to ELECTRICAL and other cognizant ENGINEERS. We need them to create a safe, economical and rational system for reliably generating and distributing power. We also need accountants, lawyers and other professionals – to give counsel, not direction.

In short, let ENGINEERS deal with ENGINEERING problems.

We of the MESC-NYC (including the local chapter of the Institute of Electrical and Electronic Engineers) serve the public by advocating the primacy of ENGINEERS in working out technical problems in such areas as construction, environmental protection, transportation, etc. Wasyl Kinach, P. E., Chair, MESC

Competing With The $800 a Month (or less) Engineer

By Paul Kostek

We hear plenty about the positive impact globalization is having on the marketplace. Unfortunately for many engineers and other high-tech professionals, the impact has been devastating.

Engineering jobs in all sectors of the economy are being contracted out and moved outside the United States at an alarming rate. By 2015, 3.3 million white-collar jobs - including more than 472,000 in information technology and mathematics - are expected to move to low-cost countries, according to Forrester Research Inc. analyst John C. McCarthy. The predicted loss in wages is a staggering $136 billion. The loss to the U.S. economy is far greater.

To take advantage of much lower salaries in other parts of the world, major corporations are already building overseas design centers. For the CEO under pressure to improve the corporate bottom line, the economics are hard to beat. You can hire a skilled non-U.S. engineer for about $800 a month, about what many U.S. engineering grads earn per week. The $5,000-a-year software programmer is another global reality.

Business Week magazine recently reported that for $650 a month you can employ an aerospace engineer in Russia with a master's degree in math or aeronautics. His U.S. counterpart makes about $6,000 a month.

So how do U.S. engineers compete in this new global marketplace? The answer has profound implications for the future of technical innovation in the United States, which sustains our nation's economic competitiveness, national security and overall standard of living.

Obviously U.S. engineers won't be able to compete on price by accepting salaries that are below U.S. poverty levels, leaving superior skills and proximity as their best hopes for maintaining a competitive edge. But even if the U.S. engineer enjoys a skills edge, how can an employer not take advantage of the increased productivity inherent in a salary differential that allows hiring 5-10 engineers overseas for the price of one here?

Is it an advantage for engineering functions to be performed close to the company site or in the same time zone? Many argue that companies prefer to keep their engineering design jobs close at hand in order to safeguard the company's intellectual property. But the offshore outsourcing trend clearly encompasses engineering design services. And what is proximate to the large global or virtual corporation that engages in 24-hour-a-day operations by moving work from time zone to time zone?

While jobs are being sent overseas, news on the home front is also discouraging. The unemployment rate for electrical engineers rose to an unprecedented 7.0 percent in the first quarter of 2003, according to the U.S. Department of Labor, Bureau of Labor Statistics, and stood at 6.4 percent for the second quarter. The most recent report also showed a 7.5 percent unemployment rate for computer programmers, 5.7 percent for computer hardware engineers and 5.6 percent for computer scientists and systems analysts. The rate for all workers was 5.6 percent.

Despite this record-high engineering unemployment, industry continues to defend increased outsourcing and the use of guest labor (such as H-1B and L-1 visa workers) by arguing that not enough U.S. students are entering engineering programs or pursing technical careers. Government is starting to join the chorus as the large Cold War generation of government engineers reaches retirement age. But if all an engineering career can promise is job insecurity and low pay on one hand, or red tape and a

government salary on the other, why would America's best and brightest choose engineering as a career path?

Lacking a clear edge in price, skills or proximity, what is the future for U.S. engineers? Do we just need to abandon certain areas and fields of engineering in the same way that the U.S. said good-bye to textiles and steel in the name of free trade?

Will job opportunities be limited to government-related work or infrastructure-related industries such as electric power generation and transmission, or phone service where U.S. citizenship or proximity is imperative?

As an engineer who has had to reinvent myself a dozen times during a 24-year career in order to stay competitive, I have to ask myself if an overseas competitor in Belarus, Beijing or Bangalore possesses the same skills that I do, and if proximity isn't important, and if they'll work for $800 a month, then why hire me at $8,000 a month? It's a question that is increasingly hard to answer. For the next generation considering a career in engineering, it will be even harder.

Paul Kostek is the 2003 Chair of the American Association of Engineering Societies and a past president of The Institute of Electrical and Electronics Engineers United States of America (IEEE-USA). The views expressed here are his own. ■

500,000 U.S. IT Jobs Projected to Move Overseas by Year-end 2004; IEEE-USA Sees Continued Loss in U.S. Economic Competitiveness, National Security.

WASHINGTON (21 July 2003) - One-half million jobs, or 10 percent of the U.S. information technology (IT) professionals currently working in IT services firms, will be displaced in the next 18 months as their jobs move overseas, according to Gartner, Inc., the Stamford, Conn.-based research firm. The Gartner projection, in a 15 July research note by Diane Morello, would bring total IT job losses to one million, when added to the 500,000 IT professionals estimated by the Bureau of Labor Statistics to have lost their jobs in the United States since 2001.

In addition, Gartner urged business executives not to "trivialize" the impact of offshore outsourcing on their businesses and employees, stating that executives should pay attention to the loss of future talent and intellectual assets, as well as the potential negative impact of outsourcing on organizational performance.

Commenting on the projection of U.S. IT job losses, IEEE-USA President-Elect John Steadman said: "In the rush to cut costs through offshore outsourcing and increased use of guest workers, companies are undermining the U.S. IT profession and are increasing the vulnerability of their core competencies and knowledge base."

Dr. Steadman, who will become IEEE-USA's president in 2004, added: "The emphasis on outsourcing to cut costs may help boost quarterly earnings, but it is also putting our nation's long-term economic competitiveness and national security at risk as we give up our technology edge for short-term profits."

IEEE-USA leaders are also concerned about increased industry reliance on non-immigrant high-tech guest workers resulting in more offshore outsourcing.

According to IEEE-USA R&D Policy Committee chair Ron Hira, "Many high-tech guest workers are brought here specifically to facilitate offshore outsourcing arrangements." Dr. Hira added: "Other guest workers are taking the acquired knowledge of U.S. technology and business practices home with them, combining that know-how with low labor costs to help foreign businesses compete more effectively with U.S. companies." ■

POWER ENGINEERING SOCIETY AND
INDUSTRIAL APPLICATIONS SOCIETY
NEW YORK & LONG ISLAND CHAPTER

YOU ARE INVITED TO A JOINT MEETING of the IEEE and Edison Engineering Society October 23, 2003 PRESENTING: Automatic Transfer Switch Application Considerations

This month's meeting will feature Don Bachman, Metro District Sales Manager for ASCO Power Technologies. With territorial responsibility for New York and New Jersey, he interfaces with consultants, contractors, and end-users from a wide variety of industries to help them with their emergency power control and monitoring concerns.

Presentation will cover:

- Introduction to Topic – The importance of Emergency Power Control and Monitoring
- System Components – Devices, Communications, Software, Services
- Device Selection – Selecting device function vs. price vs. criticality
- Communications – The key to delivering reliable controls for emergency power generation.
- Software – Providing the knowledge to make better decisions
- Services – How product mix and system implementation come together to help serve a wide range of objectives
- Conclusion

October 23, 2003

Refreshments: 5:15 pm **Program: Starting at 5:45 pm**

Location: Con Edison Executive Dining Room, 19th Floor
4 Irving Place, NY 10003

Nearest Subway: Union Square

Please Post

Reservation to :
Sukumar Alampur @ 212-563-7400
Jim Nucito @ 732-380-1100 x4149

Please Post

All Invited !

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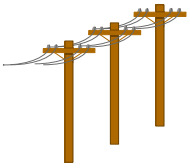
POWER ENGINEERING SOCIETY AND INDUSTRIAL APPLICATIONS SOCIETY NEW YORK & LONG ISLAND CHAPTER



YOU ARE INVITED TO A JOINT MEETING of the IEEE with Edison Engineering Society Wednesday, October 8, 2003

PRESENTING: New Technologies for a New Grid

The speaker at our October meeting will be Patrick M. Duggan, P. E., who will provide his personal perspectives on the past and currently much more rapidly changing evolution of the Power Grid, based on his many years of experience and regulatory interfaces for Con Edison in various positions of responsibility in Electrical Generation and Controls, Project Management, Electrical Construction, Nuclear Power and most recently Research and Development. Pat's presentation will also discuss the new technologies that will be needed to plan, design, manage, operate and maintain what will likely be a very different power grid in the future. How did we get to where we are, The Blackout of 8/14/03? What might be different in the future? Who are some of the major players and decision makers? How can we predict what will happen and design an evolutionary path?

Pat Duggan has been working for Con Edison since September 1968. He is the Research and Development Project Manager for Substations, Transmission, and System Operations.
Pat graduated from Manhattan College in 1986 with BSEE. He is a Professional Engineer in NY and a Senior Member of the IEEE since 1996.

Wednesday, October 8, 2003

Refreshments: 5:15 pm | **Program: Starting at 5:45 pm**

Location: Con Edison Executive Dining Room, 19th Floor
4 Irving Place, NY 10003

Nearest Subway: Union Square

Reservation to : John Michelsen @ 914 968-8400, Alan Osborne @ 212 460 6690, or Michael A. Miller @ 212 460 4911

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All Invited !

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