The IEEE Monitor

Postmaster: Send Address changes and returns to the IEEE MONITOR, c/o Membership services, IEEE Service Center, PO Box 1331, Piscataway, NJ 08855 - (ISSN 0164-9205) Please note, the Editor cannot change/remove addresses.

The IEEE MONITOR is the official news publication of the New York Section of the IEEE. Reaching over 5,000 Electrical Engineers and Computer Engineers across New York City (Brooklyn, Bronx, Manhattan, Queens and Staten Island), Rockland and Westchester Counties. The publication reports on events and activities of interest to the general membership and carries the monthly IEEE society chapter calendar of events as a service to its readers.

Published monthly, except for June, July and August, by the New York Section of the Institute of Electrical and Electronics Engineers, Inc., IEEE Corporate Office, 3 Park Avenue, 17th Floor, New York, NY 10016-5997. All communications concerning the NY IEEE MONITOR should be addressed to:

NY IEEE MONITOR
Marlen K. Waaijer
455 Beach 37 Street
Far Rockaway NY 11691
Phone: (718) 868-3219
E-mail: nymonitor@ieee.org

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. 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.

ADVERTISING POLICY

MATERIAL FORMAT

Ads are preferred in black and white digital format. File types acceptable are high resolution .png, .jpg, and .pdf. Composition and assembly to advertiser’s layout available at nominal charge. Submit copy and layout for quote.

SPECIFICATIONS AND PRICING

Publication trim size is 8 1/2” x 11”; page image size is 7.0” x 9.25”; publication is black and white 2 column format.

Display advertising space is available in full and fractional page sizes. Refer to table below for specific measurements and pricing. For quality for frequency discounts, advertiser must furnish publisher with a schedule of insertion dates. Schedule may be changed by notifying publisher prior to regular deadline date.

COMMISSION

10% commission allowed to all recognized ad agencies providing payment is received by due date. All ads invoiced on publication closing date. Full payment due 10 days after issue date. Rendering invoice to ad agency does not relieve advertiser in case agency default. For more information, email to: nymonitor@ieee.org

All advertising is subject to the publisher’s approval. Advertisers and their advertising agencies assume all liability for all content including text, illustrations, sketches, labels, trademarks, etc., of all advertising submitted for publishing, and also assume responsibility for any claims arising against the publisher.

<table>
<thead>
<tr>
<th>Type</th>
<th>Size w/h</th>
<th>Per issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full page</td>
<td>7.0” x 9.25”</td>
<td>$630</td>
</tr>
<tr>
<td>2/3 page</td>
<td>7.0” x 6.00”</td>
<td>$490</td>
</tr>
<tr>
<td>1/2 page horizontal or vertical</td>
<td>7.0” x 4.25” or 3.5” x 9.25”</td>
<td>$395</td>
</tr>
<tr>
<td>1/3 page horizontal or vertical</td>
<td>7.0” x 3.0” or 2.25” x 9.25”</td>
<td>$280</td>
</tr>
<tr>
<td>1/4 Page</td>
<td>3.5” x 4.5”</td>
<td>$225</td>
</tr>
<tr>
<td>Business Card</td>
<td>3.2” x 2.0”</td>
<td>$ 70</td>
</tr>
<tr>
<td>Column Inch</td>
<td>3.5” x 1.0”</td>
<td>$ 35</td>
</tr>
<tr>
<td>Full back page</td>
<td>7.0” x 9.25”</td>
<td>$755</td>
</tr>
<tr>
<td>Full Inside back page</td>
<td>7.0” x 9.25”</td>
<td>$695</td>
</tr>
</tbody>
</table>

5% discount for 5 issues, 10% discount for 9 issues

On the front page: From the approximately 6000 IEEE Members in the NY Section, many are also a member in one or more Societies. The front pages shows the thirty-nine Technical Societies you can belong to and the number of members they have in the NY Section. The numbers are very interesting — and hopefully are not a reflection of the importance of the subject matter. We will explore this in future issues.

Events submission checklist

- Contact person name, e-mail address & phone number
- Name of society or group(s) that sponsor the event
- Name of event
- Date of event (indicate tentative or firm)
- Time of event
- Location (FULL address)
- Location directions (subway, etc.)
- Presenter details (if applicable)
- Event abstract (if applicable)
- Registration/R.S.V.P requirement and instructions
- Cost to attendees (if any)
- CEU/PHD credits & cost information (if applicable)
- Refreshments
- Society/group website location for further information
- E-mail information to: nymonitor@ieee.org

Submission deadlines

<table>
<thead>
<tr>
<th>Issue</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>December</td>
<td>October 19, 2007</td>
</tr>
<tr>
<td>January</td>
<td>November 19, 2007</td>
</tr>
<tr>
<td>February</td>
<td>December 19, 2007</td>
</tr>
</tbody>
</table>

Note: Announcements that are submitted too late for the print version, and last minute changes to events ( please get them to us as soon as possible), will be included in the e-mail notice that is posted at the start of the month of publication.

The NY Monitor needs reporters and proof readers. You will get a chance to attend and report on meetings of IEEE Societies and interview masters in your field of study. Submit to nymonitor@ieee.org

New York Section Officers

OFFICERS
SECTION CHAIR – Stanley Karoly
VICE CHAIR OPERATIONS – David M. Weiss
VICE CHAIR SECTION ACTIVITIES – Warner W. Johnston
TREASURER – David K. Horn
SECRETARY – Darlene Rivera

COMMITTEE CHAIRS
AWARDS & RECOGNITION – Amelie Gong
BY-LAWS – William Coyne
CHAPTER ORGANIZATION – Bertil C. Lindberg
CONFERENCE COORDINATOR – Leon Katz
EDUCATION – Henry L. Bertoni
HISTORIAN – Melvin I. Olken
LONG RANGE PLANNING – William Perlman
MEMBERSHIP DEVELOPMENT – Robert M. Pellegrino
METRO ENGINEERING SOCIETY COUNCIL – Michael A. Miller
METRO SECTION ACTIVITIES COUNCIL – Robert M. Pellegrino
MEMBERS-AT-LARGE – Charles P. Rubenstein & Peter Mauzey
PROFESSIONAL ACTIVITIES – Martin Izak
PUBLICATIONS – Frank E. Schink
PUBLICITY – Nikolas Nonis
PUBLIC RELATIONS – Matt Nissen
SPECIAL EVENTS – Ralph Tapino
STUDENT ACTIVITIES – Balvinder Blah
TAPPAN ZEE SUBSECTION – Shu-Ping Chang
WEBMASTER – Harold Ruchelman

EDITORIAL STAFF
MANAGING EDITOR – Marlen K. Waaijer
EVENTS CALENDAR – Jean Redmond
COPY EDITOR – Camille A. Alma
STUDENT SECTION – Balvinder Blah
LIFE MEMBER SECTION & REVIEWS – Amitava Dutta-Roy
WEBPAGE SUPPORT – Victor Butler
MESSAGE FROM STANLEY KAROLY
(stkar@ieee.org)

Stanley Karoly

This issue of the Monitor marks the beginning of the last quarter of my position as Chair of the IEEE New York Section. In the September issue I told you that I was planning to attend the Region 1 Board of Governors and Section Officers Leadership Training Workshop Meeting in Burlington, Vermont from Friday August 10, 2007 through Sunday August 12, 2007.

I did attend. Meeting attendees included, but were not limited to; Region 1 Section Chairs, Region 1 Board of Governors (BOG) Officers, various invited Section leaders, and other invited guests both from the IEEE and outside organizations. The meeting is a three-day intensive conglomeration of leadership workshops and IEEE business meetings. Just to digress a moment, it took me five and a half hours to drive to Vermont on Thursday night. I arrived at 1:30 AM Friday morning, checked in, went to sleep at about 3 AM and woke up Friday morning at 9 AM to prepare for the day’s events. Friday’s program began at 12 PM.

The Saturday and Sunday programs started around 8 AM each day. This means that I got up at about 5:45 AM each day, did what I had to do including eating breakfast, and get down to the meeting area around 7:30 AM to begin the day’s program. The Region 1 BOG Meeting is not a vacation. It is serious business for those IEEE volunteer members in leadership positions who believe that it is important to participate in professional organization activities. And I do think it is important! I won’t get into the nitty-gritty of each day’s set of meetings and workshops, but provide the following:

Friday’s meetings began with the Keynote address by Domenico Grasso, Ph.D., P.E., DEE, Dean and Professor, College of Engineering and Mathematical Sciences, The University of Vermont. Basically, the presentation was about what engineering education needs to include in order to make it more effective. Complex systems and humanistic engineering need to be a part of a complete engineering education.

The rest of Friday’s program included leadership training sessions such as; “Section Operations”, “How to Run a Meeting”, “Financial Operations”, and “Effective Communication Skills”. A major area of interest to IEEE members is the IEEE’s new business philosophy and the way the IEEE plans to conduct business in the future. Without going into details, IEEE plans to concentrate activities around Member and Geographic Areas rather than Regional Activities.

Saturday’s program began with presentations by the three IEEE President-Elect Candidates: Marc Apter, Pedro Ray and John Vig. They each presented their vision for the future of the IEEE. You can find out more about these visions at: www.ieee.org/web/aboutus/corporate/election/video.html

The rest of the day was filled with leadership training workshops.

Saturday’s afternoon program included presentations by the IEEE-USA President Elect Candidates Gordon Day and Gregg Vaughn. The meeting continued with the BOG Administrative portion including various reports by R1 Officers.

Sunday’s program included presentations by various R1 Committee Chairs including, but not limited to; “Educational Activities”, “Professional Activities”, “GOLD Activities”, just to name a few. Sunday’s program also included presentations by R1 Director-Elect Candidates Charles Rubenstein and Babak Behesti.

If memory serves me correctly, we adjourned at about 1 PM Sunday. I checked out, left at about 2 PM and got home around 9 PM so I could get up Monday morning at 4:30 AM to get ready and go to work. I have to admit that this week was a seven day work week for me; but we do what we have to do as professionals and volunteers.

One item noteworthy of mentioning is that this year the NY Section had five Student Members present at the R1 BOG. I am sure that their reports will be much more exciting than mine.

I encourage all IEEE members to get involved in IEEE activities; attend Section and Region meetings. Our future is in your hands.

Stanley Karoly

Corrections:
In the September issue, we misspelled the name of the nominee for Vice Chair of Operations, the correct name is Warner W. Johnston. We completely left out the nomination for historian, Melvin I. Olken. Both errors are corrected in the online version and in the nomination announcement in this issue.

visit the NY Section Online Community at: https://www.ieeecommunities.org/ieee.ny
Message from the editor

I attended the Summer Conference in Burlington in August and came away with a better understanding of the structure of the IEEE. The annual conference gives the leaders of the Eastern section an opportunity to communicate with each other, while they also take care of the household chores as it were. I car-pooled with the student representatives and I must say I am very impressed with the dedication these young engineers bring to their job.

I took the opportunity to expand my knowledge of "podcasting" by participating in the Region 1 Summer Leadership Workshop track presented by the Education Society. During the workshops, some heated debates took place, not only about the format of podcasting, but also about how to turn this into an added value for our general membership. I would like to hear from people who have experience with podcasting, either as a user or a producer.

Even though the conference was jam packed with activities, I managed to connect with some newsletter editors from other sections in the region and had a short meeting with James W. Anderson, editor of the NH Section newsletter and Dru Reynolds who edits the NJ Coast Section newsletter. I recommend the report James Anderson wrote on the keynote address by Dr. Domenico Grasso, the Dean and Professor of the College of Engineering and Mathematical Sciences at the University of Vermont in the September issue of "Peak to Peak", the NH Online newsletter which you can find at: http://ewh.ieee.org/r1/new_hampshire/Docs/

More on the Burlington conference in the November issue. In this issue we have two reports by Michael Miller, the chair of the Life Members chapter, on presentations that took place in July and August. It shows that many of you have not just been at the beach this summer.

I am pleased to announce that the articles by K. Raghunandan have inspired others to add their voice to the conversation. In this issue we have two articles on renewable energy technology, one by Matt Nissen on renewable energy technology in the building industry and the second by Kevin Coughlin & Ilario Scarcia II on the use of hybrid cars to support the power grid. If you are personally or professionally involved with any of these technologies, please add your voice to the conversation.

The Professional Communication Society celebrates its 50th anniversary in 2007. I think it would be a great idea to start an New York chapter. I posted a call for interest in such a chapter on page eleven, I hope to hear from many of you.

We had to postpone publishing several submitted reports, because there are so many event announcements. If you attend any of these events, consider writing a report for the Monitor.

Table of Contents

- Masthead & Submission Guidelines 2
- Message from the NY Section Chair 3
- Table of Contents 4
- Message from the editor 4
- Calendar of events 5
- How CR Tests Cars by Michael Miller 6
- Indian Point Energy Center Poster 7
- Green Energy – The Next Frontier for Electrical Engineers Part 3 by Matthew Nissen 8
- Vehicle-to-Grid: Future Opportunities for Hybrid Cars by Kevin Coughlin & Ilario Scarcia II 10
- Nominations for the IEEE NY Section Executive Committee 2008 11
- Report on Digital Photo Workshop by Michael Miller 12
- Electrical Code Enforcement Course 13
- COMSOC NY Chapter Poster 13
- Pace Poster - Retirement for Engineers 14
- Improving Hybrid Technology Poster 14
- Arc Flash, the Hazard Poster 15
- CISS'07 - Call Poster 15
- Future City Competition 2007-2008 Poster 16

- Marlen K. Waaijer

NY Monitor Congratulates All Recipients of the 2007 Region 1 Awards

- Dr. Carlos M. Cordeiro for Technological Innovation (Industry or Government) Award.
- Stanley Karoly for Managerial Excellence in an Engineering Organization.
- Mary Y. Lanzarotti, PhD for Technological Innovation (Industry or Government) Award.
- Bob Pellegrino for Outstanding Support for the Mission of the IEEE, RAB, Region 1 and Section.
- Bill Perlman for Outstanding Support for the Mission of the IEEE, RAB, Region 1 and Section.
- Karl Sommer for Outstanding Support for the Mission of the IEEE, RAB, Region 1 and Section.
- Andy Woo for Outstanding Teaching in an IEEE Area of Interest (Pre-University or College).
CALENDAR OF EVENTS
(mark your calendar)

Wednesday, October 3, 2007, 6:00 pm – 8:00 pm
Vehicle Technology Society (VTS) presents: Frank Grabowski
"Introduction to Electromagnetic Interference EMI/EMC and Applications for Railcars"
Location: MTA, 2 Broadway, New York, NY
RSVP: Required by Noon, October 1, 2007, Kevin Coughlin, 646-252-3960 or email Kevin.Coughlin@nyct.com. No walk-ins allowed for security reasons!
Further info: Christopher Pacher, 718-422-9922 or email cpacher@r160.ltk.com.

Wednesday, October 10, 2007, 12:00 pm – 2:00 pm
NY Section Executive Committee (ExCom) Meeting
Location: Con Edison, 4 Irving Place New York, NY 10003, Room 1549S
RSVP required: Paul Sartori sartorip@coned.com No walk-ins allowed for security reasons!
If you are not an EXCOM member and wish to attend, contact: Stanley Karoly at stkar@ieee.org

Wednesday, October 17, 2007, 6:30 pm – 8:00 pm (sign-in between 5:30 pm – 6:00 pm)
Tappan Zee Subsection, ASME International & SME present Indian Point Energy Center
Location: Entergy Nuclear Northeast, Indian Point Energy Center, 450 Broadway, Buchanan, NY 10511
RSVP required: Advance reservation required. All registration must be received by October 9.
Contact Robert M. Pellegrino bobpellegrino@ieee.org or Shu-Ping Chang spchang@us.ibm.com
For directions and more information, visit the IEEE Tappan Zee Subsection website: http://www.ewh.ieee.org/r1/new_york/tz/

Thursday, October 18, 2007, 6:00 pm – 7:30 pm
ComSoc NY Meeting: Dr. Henning Schulzrinne
"E911 Location Issues for IP Telephones"
Location: Columbia University, New York, NY 10027
RSVP & further info: Visit the IEEE NY ComSoc website: http://www.comsoc.org/~nyc/

Thursday, October 18, 2007, 5:00 pm – 7:00 pm
PES/IAS meeting: “Harmonic Mitigating Transformers”
Location: Con Edison, 4 Irving Place New York, NY 10003
RSVP required: John Michelsen, JohnM@Graphalloy.com, 914-968-8400, Arnold D. Wong, WONGAR@coned.com, 212-460-4189 No walk-ins allowed for security reasons!

Wednesday, October 31, 2007, 8:30 am – 9:30 am
PACE NY Section presents: “Retirement Planning for Engineers and Architects”
Guest speakers: E. Richard Baum, CPA, J.D. and Phillip M. Ross, CPA
Location: Anchin, Block & Anchin, LLP, 1375 Broadway, 10th Floor, New York NY 10018
RSVP required: By Wednesday, October 24, 2007 Call Eric Horn (212) 536-6871 or e-mail eric.horn@anchin.com or Martin Izaak, Chairman - NY PACE at (212) 736-1255 X2760, mizaak@urbanengineers.com

Tuesday, November 6, 2007, 6:00 pm – 8:00pm, refreshments at 5:00 pm
Joint Sponsorship: Engineering in Medicine & Biology and Instrumentation & Measurement Chapters present: Airmendy A. Ovalle
"Medical Informatics: Keys to Sustaining Affordable and Effective Medical Care in the United States"
Location: Leo Engineering Bldg., Manhattan College, Bronx, NY. (parking available!)
RSVP and further info: Gordon Silverman, gsilverm@ieee.org, 718-862-7153

Wednesday, November 7, 2007, 6:00 pm – 8:00pm
Vehicle Technology Society (VTS) presents: Peter le Comte
"Improving Hybrid Technology Using In-Wheel Motors"
Location: MTA, 2 Broadway, New York, NY
RSVP: Required by Noon, November 5, 2007, Kevin Coughlin, 646-252-3960 or email Kevin.Coughlin@nyct.com. No walk-ins allowed for security reasons!
Further info: Christopher Pacher, 718-422-9922 or email cpacher@r160.ltk.com.

Tuesday, November 13, 2007, 6:30 pm – 8:00 pm
Broadcast Technology Society (BTS) presents: Chapter Chair Warner W. Johnston
“Captioning I Tutorial”
Location: 47 West 66th St, New York, NY
RSVP required 24hrs in advance: Warner W. Johnston, Warner.W.Johnston@abc.com or 212-456-2547 No walk-ins allowed for security reasons!

Wednesday, November 14, 2007, 12:00 pm – 2:00 pm
NY Section Executive Committee (ExCom) Meeting
Location: Con Edison, 4 Irving Place New York, NY 10003, Room 1549S
RSVP required: Paul Sartori sartorip@coned.com No walk-ins allowed for security reasons!
If you are not an EXCOM member and wish to attend, contact: Stanley Karoly at stkar@ieee.org
LIFE MEMBER EVENT – “HOW CONSUMER REPORTS TESTS CARS”
Reported by Michael Miller - Chair Life Members group

Recently two events coincided, the death of the inventor of Matchbox cars, Jack Odell, and the Life Member seminar on How Consumer Reports (CR) Tests Cars, August 1, 2007, neither of which is related except through the common automotive motif. Our presenter, David Champion, like Mr. Odell can capture the imagination of car buffs with the most comprehensive auto-test program of any U.S. publication. His presentation was remarkable in both its extent, covering over 50 different test procedures and the independent, unbiased reviews that don’t pull punches to please advertisers. British-born and unfailingly polite, Champion delivers even his harshest opinions cheerfully, directly, and unequivocally. Based on CR surveys on about 1.3 million vehicles spanning 1997 to 2006, CR can predict how current models are likely to hold up. CR anonymously buys all the vehicles it tests from dealerships, just as you and I would. Last year, the company spent over $2.8 million on test vehicles. Champion’s staff of twenty experienced auto and tire engineers test and evaluate vehicles typically driven about 6,000 miles. Tests like real-world fuel-economy, accident-avoidance, antilock-brake, and tire wear are just a few of the tests performed on the 327-acre test site.

Not every automaker is thrilled by the prospect of having its vehicles rated by Champion; but some top-level automotive executives show up at the test site because they want to learn how to improve what they make.

CR’s engineers use objective means in their acceleration and braking tests and can tell how far a vehicle has gone and how fast. One of the more interesting parts of the presentation was a planned safety computerized demonstration that simulated a crash and how multiple devices could be used to prevent injury. Preventing “over steering” was another unique safety feature – electronic stability control (ESC) - that will some day be deployed on all vehicles. The fact that air bags only help in about five percent of accidents was very revealing. Another surprise was that the Mercedes-Benz is the least reliable car sold in America. “But the ride, handling, steering and balance make it really fun to drive,” Champion stated.

Consumer Reports comes to such conclusions by drawing on the results of a six-page survey that goes out to approximately seven million readers. About 960,000 readers responded to the last year’s survey, representing 1.3 million vehicles.

Champion says that some of the most telling information comes from these surveys. The surveys cover a multitude of potential problem areas, including engine, transmission, fuel system, electrical, climate system, suspension, brakes, exhaust, and body integrity. “The reason that Toyota and Honda have done so well in the U.S. market is that in the fourth, fifth, and sixth year of ownership, people do not have problems with them.”

Consumer Reports treasures its reputation and apologizes when it makes a mistake. Earlier this year it retracted the results of crash tests conducted by an outside lab on infant car seats. CR promptly disclosed the error and notified each of its subscribers.

Entergy Nuclear Northeast is part of Entergy Corporation, a global energy company based in New Orleans. Entergy owns, operates and manages ten nuclear generation plants that are among the safest and most professionally operated energy facilities in the United States. Entergy owns and operates the Indian Point Energy Center, located in Buchanan, N.Y. Westchester County. Indian Point provides power to millions of homes, thousands of businesses, and hundreds of critical transportation, health and municipal systems.

Nuclear energy is a price-stable energy source and does not fluctuate like natural gas prices or other fossil fuels. For New York State’s electrical grid, closing Indian Point would reduce the amount of power available by 11 percent. Resulting blackouts will cost area businesses an additional $3 billion.

**Wednesday, October 17, 2007**

6:30PM - 8:00PM

(Arrive between 5:30PM - 6PM)

**Location:**

Entergy Nuclear Northeast
Indian Point Energy Center
450 Broadway
Buchanan, NY 10511

Advance reservation required. All registration must be received by October 9. Please contact Robert M. Pellegrino bobpellegrino@ieee.org or Shu-Ping Chang spchang@us.ibm.com

For directions and more information, please visit the IEEE Tappan Zee Subsection website, http://www.ewh.ieee.org/r1/new_york/tz/

ALL ARE INVITED
GREEN ENERGY – THE NEXT FRONTIER FOR ELECTRICAL ENGINEERS – PART 3
By Matthew B. Nissen (matt.nissen@ieee.org)

In the two previous installments in the series on green energy in the March and September issues of the Monitor, K. Raghunandan did a fine job of introducing the potential usefulness of renewable energy sources such as the sun and the wind. The global markets for these energy sources are growing every day and surely aid civilization in reducing the burning of fossil fuels. While studying for my BSEE at Polytechnic University, my senior project was a research paper entitled “Hybrid Solar-Wind Generation” – so I am very familiar with the technical aspects of these technologies. The power output from wind and solar installations can be controlled with power electronics (PWM inverters & voltage regulators) to be of utility grade quality (voltage and frequency regulation ±2%, and conform to IEEE1547) or better, depending on the power converters used. What is less known is where and under what circumstances wind and solar power is feasible and effective. I am currently working on a paper that analyzes the technical and economic aspects of integrating renewable energy technology (RET) into the built environment; ideally sustainable development projects because of the shared incentives. The title of this paper is “High Performance Development As Distributed Generation” and I will seek peer review when it is completed; if anyone is interested please contact me. Considering all the new construction in the USA anticipated by A.C. Nelson of the Brookings Institution, building integrated RETs has enormous potential. IEEE Power and Energy Magazine (PEM) published an excellent article in the Jan-Feb 2003 issue entitled: “Distributed Generation: Semantic Hype or the Dawn of a New Era”. I think we should be aware of some important distinctions and facts about wind and solar energy. The first most important fact about wind and solar energy is that they are intermittent resources, and subject to changes in weather conditions - erratic and difficult to predict with real certainty. The early adoption of solar and wind technologies are considered distributed resources because they were small generators and located close to the loads they served. Of course, today we have solar photovoltaic installations like that of the Stillwell Avenue terminal in Brooklyn with a rated output of 199kW peak and wind farms that exceed 50 MW peak of generation throughout the Midwestern USA. The problem is that utility companies are not yet able to effectively use these resources because they do not provide energy continuously and during peak loading on electrical grids. Additionally, central and base load plants are much more effective at producing electricity with a relatively small footprint (not counting emissions and environmental effects unfortunately). It is correct that utilities must install an equal amount of fossil backup generation to effectively count installed RETs as reliable capacity – these backup units are usually gas turbines and diesel generators because the size of solar and wind installations is limited due to land availability, proximity to transmission lines, and price constraints. For small loads like street lighting, telecom towers, electric traffic signs, etc., RET can provide ample energy over the long term, but without connecting this municipal infrastructure to the grid these units will need engineered battery backup, otherwise they will be unreliable. Currently, uninterruptible power supply (UPS) systems are more expensive than inverters, and it is even more expensive to configure these loads to run on both AC and DC power.

From the utility company’s viewpoint, RET installations are costly and the savings generally are accounted for as fuel savings from base-load plants. PEM also published an interesting article in a recent issue on a sample pricing model of distributed energy for utilities. Energy produced during peak load hours is much more valuable than that produced during off-peak hours – and in some cases models predicted that energy generated during off-peak hours could have costs instead of savings. Without effective means of utility scale energy storage, and funding from selling the carbon-reduction credits on a market (none are yet operating the US), the economics for RETs involving wind and solar are very daunting. Additionally, large scale wind farms onshore or offshore do not generally offer any transmission savings like that of other distributed resources that are close to the load – unless we’re talking about a really windy city (such as in the Netherlands, Dakotas, etc.).

The future of these technologies is growing in the following ways:

Currently researchers are working to improve cell efficiencies on two fronts. In 2002, researchers at Lawrence Berkeley National Laboratory, working with crystal-growing teams at Cornell University and Japan’s Ritsumeikan University, discovered that a single system of alloys incorporating indium, gallium, and nitrogen can convert virtually the full spectrum of sunlight, from the near
infrared to the far ultraviolet, to electrical current; this led them to theoretical efficiencies better than 70\%\textsuperscript{3}. More recently, researchers at the University of Idaho have created a compound called a "quantum dot" that is made of elements that include copper, indium, and selenium. The quantum dots would be embedded between layers of a solar cell and would absorb energy that is otherwise wasted due to overheating; potentially doubling the efficiency (up to 50\%).\textsuperscript{4} Wind turbines of the future will likely follow the current trend of increased energy output to multi-MW machines, ensuring optimal performance in a range of environments, and have an operational lifetime reaching or exceeding thirty years. One recent innovation - the Liberty\textsuperscript{TM} 2.5 MW turbine - was developed by Clipper Windpower PLC. It is comprised of four generators that are engaged selectively depending on the wind-speed, thus increasing the operational range of wind-speeds and energy output for all sites that experience varying wind-speeds. While this will likely increase the capital equipment costs, it has the potential to increase the plant's capacity factor beyond the 40\% ceiling that plants currently are limited to in practice; this will increase the cumulative energy generated and hence improve the feasibility. There are several small wind systems that been developed for the residential market, using a variety of technologies, but most have low power ratings (~3kW or less).

What is unclear is the fate of these technologies. Will research funding disappear with price drops in oil and natural gas? Can we build enough of these RET plants to replace our existing stock of fossil fuel driven plants? Not likely, and they would cover an area so large that they would no longer be environmentally friendly. This is not a discussion of distributed generation versus central generation – both have advantages and disadvantages, but we should consider that our future electric infrastructure may require both forms to ensure a reliable and sustainable power grid. We have come to uncharted territory when it comes to our ability to meet growing demand and environmental concerns. There are many alternatives that must all be used in coordination with existing electric infrastructure in order to meet future energy needs. The largest unknown of these future energy needs is the increase in electric and fuel availability to huge rural populations in India and China, which contain roughly one-third of the world’s population. Why aren’t buildings designed and constructed to be electrically self sufficient through the use of onsite power production?

Some energy companies and solar installers have begun answering the call (for those that can afford it) by engaging homeowners to take advantage of Federal and State incentive programs (such as those available through the Department of Energy (DOE) and the New York State Energy Research and Development Authority (NYSERDA)) for residential RET installations. Companies like Independence Energy Homes (www.zeroenergy.com/) and Renewable Energy Concepts (www.recsolar.com) will design and help finance residential projects with building integrated RET. The amazing potential for residential RET is that homes use such a small quantity of energy individually and are so numerous that combined they have the potential to produce enough renewable energy to displace large power plants. Now, how can we make them self-sustaining and reliable? The US DOE has launched the Building America initiative\textsuperscript{5} to help homes become more energy efficient and reduce energy needs locally. 

\textsuperscript{2} “Stillwell Avenue Gets Solar Powered Terminal” http://www.loho10002.com/wordpress/?p=812
\textsuperscript{5} For additional information on RETs check out http://www.eere.energy.gov/buildings/building_america/ & http://www.retscreen.net/ang/home

Matthew Nissen is the chair of the Public Relations and Consultants Network for the IEEE NY Section. He is the founder of the [ieee.ny] Online Community. Nissen is a Brooklyn native, and grew up in Coney Island. He graduated with a BSEE from Polytechnic University in 2003 and is currently an engineer with Cosentini Associates Consulting Engineers working on various types of facilities and developments. His career focus is sustainable development and electric power infrastructure with a special interest in renewable energy sources and DG. He enjoys helping other engineers with professional development and career guidance. Nissen's hobbies include swimming, beaches, traveling, philanthropy, and networking.
Vehicle-to-Grid: Future Opportunities for Hybrid Cars
By Kevin Coughlin & Ilario Scarcia II
(kevin.coughlin@nyct.com) (scarcia_ilario@bah.com)

Out of the millions of vehicles on the road in the US, only thousands are hybrids, yet hybrid cars are entering the garages of environmentally-minded drivers from almost all of the major automobile manufacturers. The improved gas mileage and reduction in emissions of these cars may not be the only benefits of hybrid technology. In the future, Vehicle-to-Grid technology may be a benefit of hybrid vehicles, not only to consumers, but also to the nation. Studies of Vehicle-to-Grid technology show how hybrid cars and fully electric vehicles may be used to stabilize and support electric power grids which could reduce the number of running standby power generators needed for peak demands. Similar to how computer programmers have used numerous distributed small processors of idle personal computers to act as one large processor to assist in performing complex calculations in mathematics and astronomy, parked cars in the Vehicle-to-Grid set-up can function as numerous small generators and batteries replacing larger generators.

Technology
Concentrated or dispersed fleets of electric vehicles may be plugged into a power grid to add power at times of peak demand, standby as reserve power for emergencies, or stabilize the frequency and voltage of a power grid. Connecting an electric vehicle to the power grid would require a receptive connection to the electrical grid, communication, controls, and metering. Alternating-current (AC) drive vehicles would be candidates for Vehicle-to-Grid connections (smaller vehicles with direct-current (DC) drives would not be ideal candidates due to prohibitive cost associated with inverters required for grid compatibility). Currently such AC vehicles include fully electric cars (with batteries) and hybrids, however today’s hybrids lack the extra internal circuitry and external plug necessary to give electricity back.

To advance the technology of electric vehicles, auto-manufacturers and aftermarket entrepreneurs are experimenting with plug-in hybrids and fuel cell vehicles that would also have use in a Vehicle-to-Grid situation. Plug-in hybrids would achieve high gas mileage (upwards of 70 miles per gallon) and reduce emissions while having the ability to support the power grid through a Vehicle-to-Grid connection. The plug-in hybrid concept differs from present hybrid cars in that such vehicles require a higher capacity battery, an adapter plug for charging or supplying power, and internal circuitry for monitoring and controlling the battery capacity. The electrical grid connection could be as simple as a standard 120 VAC outlet, or could involve metering and communication with the independent system operator. The electrical connection may also be designed to allow higher charging and discharging rates to accommodate vehicle owner and power grid needs. Charging circuitry would disconnect the vehicle from the power grid when the battery’s charge drops to some predetermined amount, such as the minimum amount required for the vehicle’s next round trip or other value desired by the driver.

Presently, Google Corporation and Pacific Gas & Electric have teamed up to work on an accelerated pilot program, RechargeIT, utilizing Vehicle-to-Grid technology. In this program, Google is planning to implement as many as 100 plug-in hybrid vehicles into its corporate fleet to make better use of the energy expended in their corporate headquarters and to stabilize the local power grid. The data collected from this RechargeIT program will be shared with world through the RechargeIT.org website to allow for better understanding of the advantages/disadvantages of Vehicle-to-Grid technology.

Uses and Opportunities
Vehicle-to-Grid technology is a basic framework from which a variety of ancillary uses and benefits may be obtained. The technology may be used to:

- Supplement solar and wind power, buffering the fluctuating power outputs from these renewable energy sources.
- Allow hybrid or fuel cell vehicles to function as generators for residents of areas without reliable power. (Residents could be paid for the power that is pumped back into the power grid since the plug-in cars would be integrated to the home’s electric metering system).
- Develop an electric parking lot wherein vehicles could park and recharge while their capacity is used for power-grid frequency regulation.
- Augment power generation at production facilities through the use of hybrid vehicle fleets as Google is doing in their RechargeIT program.
- Supply electricity from large hybrid bus fleets when the buses are idle such as overnight or during off-peak hours.

Challenges
Vehicle-to-Grid technology has yet to fully mature,
and several hurdles need to be overcome before large-scale benefits may be realized.

- Battery capacity in electric vehicles is relatively low compared with power grid demands, necessitating many cars for impact.
- Due to the limitations of the battery technology presently used in electric vehicles, the useful life of the battery may be reduced by the charging/discharging operations of Vehicle-to-Grid.
- Current commercial output of electric vehicles is insufficient for support of any major Vehicle-to-Grid enterprise.
- Current production hybrids do not have plugs. To hasten the advent of Vehicle-to-Grid, utilities may provide consumers with rebates or incentives for these types of vehicles.
- Infrastructure is not in place to accept power from electrically-driven vehicles or provide economic incentive for participation.
- Peak electrical demand occurs in the afternoon about the same time as peak demand for commuter cars.

Despite the challenges ahead for this technology, the potential advantages warrant additional research. For more information on Vehicle-to-Grid technology including economic and engineering analysis, see www.udel.edu/V2G/index.html.

Kevin Coughlin, P.E. is the VTS NY Vice Chair. He has worked with New York City Transit for nine years and currently works in the Capital Program Management Department.

Ilario Scarcia II is the VTS NY Secretary. He is an electrical engineer working for Booz Allen Hamilton as an Associate in the NY/NJ offices with a background on rail vehicles.

---

**CALL FOR THE FORMING OF A NY SECTION CHAPTER OF THE PROFESSIONAL COMMUNICATIONS SOCIETY**

By Marlen K. Waaijer (marlen.k.waaijer@ieee.org)

Local Chapters can be a great resource for society members and I wonder if there are enough interested people in New York to start a local chapter of the Professional Communication Society (PCS)? A quick peek at our member database shows that the PCS has at least twenty-one members in New York, so there is a potential opportunity for us. If you are interested in such an endeavor, send me your e-mail and I will get the ball rolling.

Our first step would be to write a petition which has to have at least twelve signatures of IEEE members with a status of Associate member or above. If you are not aware of the Professional Communication Society, visit their website at: http://www.ieeepcs.org/. I look forward to hearing from all of you.

---

**Nominations for Officers and Elected Committee Chairs for the IEEE New York Section Executive Committee 2008**

The Nominations Committee of the IEEE New York Section - Paul Sartori (Chair), Ralph Tapino, Robert Pellegrino and Benjamin Schall - proposes the following slate for election as officers and elected committee chairs of the Executive Committee for the period January 1, 2008 to December 31, 2008.

All Members in good standing - except Student or Affiliated Members - of the New York Section are eligible to vote. The election meeting is scheduled for Wednesday, November 12, 2007 beginning at 5:00 pm in the Edison Room at Con Edison, 4 Irving Place, New York NY 10003. Voting will take place at 5:30 PM.

**Officers Elected**

Chairman - David Weiss  
Vice Chair Operations - Warner W. Johnston  
Vice Chair Section Activities - David Horn  
Treasurer - Darlene Rivera  
Secretary - Balvinder Blah

**Committee Chairs**

By-laws - William Coyne  
Chapter organization - Bertil Lindberg  
Historian - Melvin I. Olken  
Long range planning - William Perlman  
Managing editor - Marlen K. Waaijer  
Publications - Ben Schall  
Special events - Ralph Tapino  
Web master - Harold Ruchelman

Additional nominations, made by petition, should be postmarked no later than October 8, 2007 and mailed to: Paul Sartori, Chairman of the Nominations Committee, Con Edison, 4 Irving Place — Room 1500, New York, NY 10003

---
“DIGITAL PHOTO WORKSHOP: SHOOT & EDIT LIKE A PRO”
Reported by Michael Miller - Chair Life Members group

IEEE members who attended the Digital Photo Workshop organized and presented by the Life Members chapter were treated to an exceptional presentation by Lesa Snider King. Snider, who is an avid photographer, traveler, biker, and skier, delivered a very informative session on photography and digital editing. She covered both the technical aspects of taking digital photographs, and the subsequent editing with computer software.

Snider is the assistant of The New York Times technology columnist, David Pogue. She writes for the National Association of Photoshop Professionals, Macworld, Layers Magazines, and the Photoshop Newsletter, Elements Techniques. She is the co-author of the forthcoming Photoshop CS3; The Missing Manual, which will be published by O’Reilly in October, 2007. In addition you can catch her Graphics Tip of the Week on www.YourMacLifeShow.com, an internet podcast site that is mainly aimed at Mac users. Her mission is to teach the world to create better graphics. Snider created and maintains a photographic website called www.graphicreporter.com.

Snider began her presentation by going over the general digital camera settings and then moved on to composition techniques. “Learning and applying these simple steps will help you to improve your composition” she stated. She demonstrated how several of these basic techniques can be easily employed. Until now you are probably taking photographs for your own pleasure, but if your pictures are pleasing to someone other than yourself, they will make your photography experience much more rewarding. One of the most popular ‘rules’ in photography is the ‘Rule Of Thirds’. Imagine that lines are drawn dividing the image into thirds both horizontally and vertically. You should focus on the most important element of your composition where these lines intersect.

Another method Snider introduced was the use of perspective. “Don’t be afraid to get down on your knees or really up close to take that exceptional picture.” King displayed many examples of her own photographs to demonstrate these techniques.

The second part of the presentation was devoted to the use of photo editing software, in particular, PhotoShop Elements by Adobe. You can purchase this software for approximately $80. Snider explained how the most common editing techniques are used, first by demonstrating what ‘autofix’ can do and then moving on to some of the more sophisticated methods like; framing, skin toning, brightness, contrast control, cropping, and printing techniques, where one can adjust the image’s properties, such as height and width, by reducing the number of pixels, without diminishing the quality of the image. This can be done by compressing the image, making it fit in a smaller area. The audience enjoyed Snider’s presentation, her vitality, engaging personality, knowledge, imagination, and captivating focus.

Michael Miller is the 2007 Chair of the Life Members group. He retired as a senior engineer from Consolidated Edison Company of New York, Inc. An IEEE member since 1970, he has been an active member of the NY Section since 1990 and is a past chair of the Power Engineering Society, secretary of the Edison Engineering Society and, treasurer of the American Association of Construction Engineers. He is a licensed Electrical Contractor in New Jersey and a master electrician and journeyman lineman in New York State.
A TALK SPONSORED BY THE
COMSOC NY CHAPTER

NEXT-GENERATION EMERGENCY CALLING (NG911)

THURSDAY OCTOBER 18, 2007 - 6:00 PM

COLUMBIA UNIVERSITY

NEW YORK, NY 10027

Our speaker Professor Henning Schulzrinne is currently chair of the Department of Computer Science at Columbia University. Protocols he co-developed, such as RTP, RTSP and SIP, are now Internet standards, used by almost all Internet telephony and multimedia applications. He is Chief Scientist for FirstHand Technologies, and has served the IEEE in various capacities, including membership on the Board of Governors of COMSOC. He is a Fellow of the IEEE and has received the New York City Mayor’s Award for Excellence in Science and Technology.

The current emergency calling system, designed in the 1970s, is plagued by delays and reliability problems, and has difficulty dealing with overloads and upgrades. It has cost billions to incorporate location information from cellular phones. Standards organizations have started to re-design the existing system using open standards and Internet protocols. Professor Schulzrinne will discuss some core technologies that address emergency calling system problems, our current prototyping work, and how these technologies can be used to support other location-based services.

For further information and registration please go to www.comsoc.org/~nyc

CALLING ALL ENGINEERS, FACILITY OPERATORS, DEVELOPERS, INVESTOR, BUILDERS/CONTRACTORS AND FACILITY ADMINISTRATORS, ....

Electrical Code Enforcement

Come learn about the “why” and “how” of electrical code enforcement in New York City. Photovoltaic installers and other renewable energy and energy conservation professionals regularly encounter obstacles when electrical connections to their work are required. Often, there may be insufficient information on what the code may require, or how the necessary paperwork is to be completed. Completion of projects on time and within budget can easily be derailed by complications with code compliance. Learn more about how to achieve that compliance and where to file the necessary forms.

This 4-hour seminar will be conducted by three leading experts in the field, Clarence Tsung, President, Clarence Tsung Associates Inc.; Sam Marcovici, Senior Electrical Engineer, New York City Department of Buildings and Chairman of the Electrical Code Committee; and Frank Coluccio, Chief Electrical Inspector, New York City Department of Buildings and Chairman of the Electrical Advisory Board. Together, they have 75 years of combined experience in electrical code compliance.

Clarence Tsung has headed his own Electrical Engineering Consulting Firm since 1979. Prior to 1979, Clarence was Director of Electrical Engineering at Syska & Hennessy, a major U.S. engineering consulting company headquartered in NYC. Mr. Tsung serves on the NYC Electrical Code Revision and Interpretation Committee (since 1965). He has authored numerous technical papers, and has lectured at university seminars in Electrical Engineering System Design and related code issues.


Course Title: Electrical Code Enforcement
Meeting Time: Tuesday, October 23, 2007, 9am-1pm
Fee: $100
Location: Bronx Community College

4 NYS Board for Engineering learning units, for more information, call 718-289-5100 x3733 or http://www.bcc.cuny.edu/institutionaldevelopment/cse/courses_seminars.cfm
Join the NY Section of the Vehicular Technology Society at their Technology-Sharing Forum featuring Improving Hybrid Technology using in-wheel motors

Presented by Peter le Comte

Nov 7, 2007, 6:00 to 8:00 PM
MTA NYCT Offices
2 Broadway, New York City 20th Floor Conference Room

- Learn how Hybrid technology has evolved with the use of in-wheel motors and how in-wheel motors improve fuel economy and safety.
- Presented by Peter le Comte, CEO of e-traction Worldwide S.C.A

The forum is free and open to all IEEE members as well as non-members.

Advance registration is required for admission. Please confirm your registration by email or phone with: Kevin Coughlin: Kevin.Coughlin@nyct.com, phone: 646-252-3960. Registration closes at noon, November 5th. Additional information regarding program specifics can be obtained by contacting Christopher Pacher at 718-422-9922 or by e-mail at cpacher@r160.ldk.com.

---

PACE New York Section: Invites You to Attend a Special Presentation:

You are cordially invited to a free seminar and breakfast to discuss and get answers to some of the questions you may have about retirement planning:

RETIREMENT PLANNING FOR ENGINEERS & ARCHITECTS

What are the tax considerations for your investments?
How do you calculate your living expenses for retirement?
How can you protect your assets?
What are your insurance requirements?
What are the keys to estate planning?

Guest Speakers are:
E. Richard Baum, CPA, J.D.
Tax Partner, Partner-in-Charge of
Anchin Wealth Management
Anchin, Block & Anchin, LLP

Phillip M. Ross, CPA
Audit Partner and Chairman of the Architectural &
Engineering Services Group,
Anchin, Block & Anchin, LLP

Wednesday, October 31, 2007 — 8:30 AM – 9:30 AM
Anchin, Block & Anchin, LLP, 1375 Broadway, 10 Floor, New York, NY 10018

Credits towards your New York State engineering or architectural licenses are available as well as credits towards your membership in the AIA. Your friends and colleagues are welcome!

Seating is limited. Please reserve your seat(s) today.

Please RSVP by Wednesday, October 24, 2007 to: Eric Horn at (212) 536 - 6871, eric.horn@anchin.com or Martin Izaak, Chairman - NY PACE at (212) 736-1255 X2760, mizaak@urbanengineers.com

---
Electric Arc Flash is a formidable hazard to those that work on electrical distribution systems and connected equipment. Contact with exposed energized electrical components is the usual primary concern when conducting electrical work. The lingering other hazard is the unexpected short circuit fault that can release significant amounts of energy and cause severe injury to those in its midst. Considerable effort has been put forth by the National Fire Prevention Association (NFPA), IEEE and others to help define the Arc Flash hazard, establish training material, and develop guidelines to help minimize exposure to the Arc Flash hazard.

**Thursday, November 15, 2007 — 7:00PM – 8:00PM**

**Location:** Polytechnic University, Westchester Campus, 40 Saw Mill River Road, Hawthorne, NY 10532

For directions and further information, go to the event page on IEEE Tappan Zee Subsection website http://www.ewh.ieee.org/r1/new_york/tz/

---

SCSS 2007 provides a virtual forum for presentation and discussion of the state-of-the-art research on computers, information and systems sciences and engineering. SCSS 2007 is one of the sub-conferences in the CISSE series of international joint e-conferences. CISSE is the World’s first Engineering / Computing and Systems Research E-Conference. CISSE 2005 was the first high-caliber Research Conference in the world to be completely conducted online in real-time via the internet. CISSE 2005 received 255 research paper submissions and the final program included 140 accepted papers, from more than 45 countries. CISSE 2006 received 691 research paper submissions and the final program included 390 accepted papers, from more than 70 countries.

The virtual conference will be conducted through the Internet using web-conferencing tools, made available by the conference. Authors will be presenting their PowerPoint, audio or video presentations using web-conferencing tools without the need for travel. Conference sessions will be broadcast to all the conference participants, where session participants can interact with the presenter during the presentation and (or) during the Q&A slot that follows the presentation. This international conference will be held entirely on-line. The accepted and presented papers will be made available and sent to the authors after the conference both on a DVD (including all papers, PowerPoint presentations and audio presentations) and as a book publication. Springer, the official publisher for CISSE, published the 2005 proceedings in two books and the CISSE 2006 proceedings in four books.
INSPIRE
EDUCATE
ENCOURAGE
HAVE FUN...
BECOME A MENTOR

NEW YORK CITY METROPOLITAN REGION
NATIONAL ENGINEERS WEEK
FUTURE CITY COMPETITION 2007-2008

As an Engineer Mentor in the National Engineers Week Future City Competition, you will give 7th and 8th grade students an opportunity to learn about engineering. The contest consists of creating a city simulation in SimCity 3000, building a scale model of a portion of the city, writing an abstract about their city and an essay on a topic selected by the Competition, and reciting an oral presentation to describe the merits of their creation. Your role as a mentor would be to give the students information on how engineers help design, build and improve cities. This year’s essay assignment focuses on the use of nanotechnology and control systems in their city.

For more information visit the national website at …www.futurecity.org or our local website at…
http://sections.asce.org/metropolitan/futurecity/index.html

The program asks for a 15 to 20 hour commitment over the months of October 2007 to January 2008. You will become part of a team with a teacher and three students. We have schools in New York City, Long Island, Westchester and New Jersey.

TO OBTAIN A LIST OF SCHOOLS PARTICIPATING IN THE COMPETITION OR FOR MORE INFORMATION, PLEASE CONTACT:

Karen Armfield - Regional Coordinator
DMJM + Harris
Tel: 212-701-2808
karen.armfield@dmjmharris.com

Teresa Llorente - Mentor Coordinator
NYC Economic Development Corp
Tel: 212-312-4268
tllorente@nycedc.com

Or sign up to be a mentor on the Web at www.futurecity.org