July 2008 www.cis-ieee.org

THE REPORTER

Journal of the Central-Indiana Section • The Institute of Electrical and Electronics Engineers, Inc.

Central Indiana Section IEEE/Power Engineering Society/Industry Applications Society Annual Student Awards Banquet

by Earl Hill, Chairman, PES/IAS

To better accommodate award winners, the CIS-IEEE and the PES/IAS had decided to combine their formerly separate annual awards banquets. The joint event was held on April 15 at the IPL Safety Room. After a fine dinner catered by Indianapolis Power & Light, the program continued with three speakers – recent graduates in electrical engineering who discussed their experiences following graduation. This was followed by presentation of awards to students by Professor Tim Skvarenina of the PES/IAS and Mr. Will Kassebaum of the CIS-IEEE.

The three speakers were Mr. Ben Huckaba, Mr. Arun Kumar, and Mr. Jeffery Rachford. Each presenter discussed his experiences after graduation, and provided some pointers for students in getting their first job, getting the job they wanted, and succeeding in that job. One key point made by all the speakers is that the job market has changed – today's graduates can expect to change jobs often during their careers. Relatively few, compared to previous years, will spend their entire careers at one company. Today's graduates will also likely have more responsibility sooner than graduates from previous eras.

Dr. Skvarenina and Mr Kassebaum then presented awards to the following students:

STUDENTS	AWARD	COLLEGE
Robert O. Gray	Outstanding Senior Power Engineering Student	IUPUI
Cody S. Christian	Outstanding Senior Power Student	Rose-Hulman
William Shuman	Outstanding Senior	Purdue ECET
Eric Zeckner	Outstanding PES/IAS Senior Project Team	IUPUI
Eric A. Nees	Outstanding Power Related Project	Rose-Hulman
Kimiko M. Parker (not shown)	Outstanding Power Related Project	Rose-Hulman
Cory D. Pate	Outstanding Power Related Project	Rose-Hulman
Matt M. Peter	Outstanding Power Related Project	Rose-Hulman
Jason Brugh	Outstanding Junior Power Engineering Student	IUPUI
James B. Mayfield	Outstanding Junior Power Student	Rose-Hulman
Christine Haines	Outstanding Junior	Purdue ECE
Bradley Mayer	Outstanding Junior	Purdue ECET
Stephen Nease	CIS-IEEE Award	Rose-Hulman

Chair Earl Hill

Christine Haines – Purdue ECE

Speakers Kumar, Huckaba, Rachford

Cody Christian – Rose Hulman

Brad Mayer – Purdue ECET

Cory Pate – Rose Hulman

Eric Nees – Rose Hulman

Jason Brugh – IUPUI

Eric Zeckner – IUPUI

Matt Peter – Rose Hulman

James Mayfield – Rose Hulman

Robert Gray – IUPUI

Stephen Nease – Rose Hulman

William Shuman – Purdue ECET

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CIS-IEEE Spring Short Course on LabVIEW

Over three Wednesday evenings in May at IUPUI, CIS offered its Spring Short Course on LabVIEW. Topics covered included: Introduction to LabVIEW, LabVIEW and Data Acquisition, and Using LabVIEW for Signal & Image Processing. The instructors were: Patrick Hart, Field Engineer; Luke Graham, ELP Engineer; and Chad Ruwe; Area Sales Manager, all of National Instruments. Training included lectures and hands-on work. Seventeen attendees included IEEE members, engineers and students.

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CIS/CIECN Consulting Seminar

Gary Blank conducted a six hour consulting workshop on April 26 at IUPUI. He touched on the number of areas for a consulting business including:

- How to Get Started Without Leaving Your Present Job, Keeping Records, & Taxes.
- How to Set Your Fees - A Formula for Fee Setting; Experience Needed.
- How to Win the Contract, Step-By-Step, What To Say, What To Do.
- How to Find Clients.

Fourteen IEEE and non-IEEE members from various industrial backgrounds attended the conference. The workshop went very smoothly with a lot of interactions with the attendees.

* * *

IEEE-USA Meeting – Indianapolis

by Earl Hill

From April 25th through the 27th, the IEEE-USA held its annual national meeting in Indianapolis. The theme for this year was “Green Engineering”. As part of this effort, Central Indiana Section members Earl Hill and Will Kassebaum presented “Sections Going Green”, which covered how individual IEEE sections can increase understanding of “green”.

Among its many missions, the IEEE has an obligation to educate its members and to advocate appropriate policies. Based on the facts presented, individual IEEE members can make their own decisions regarding the best strategies and on how to educate the public. While the national organization has a number of responsibilities, the “rubber meets the road” with the local sections. The CIS presentation dealt with some of the things sections can do.

The CIS presentation discussed the activities the Central Indiana section has conducted, plus some ideas for additional activities. First, the subject of “green engineering” was organized, along the following lines (which reflect the high participation of the Power & Energy/Industry Applications Society):

Technology
- Energy Production
- Energy Consumption
- Other Production

Policy
- US/State Government
- International
- Non-governmental Organizations

In each of these areas the CIS has held or will hold tours and brought in knowledgeable speakers. The tours included: a tour of the Wabash River Generating Station (coal gasification), the Lugar Center for Renewable Energy at IUPUI, the Altairnano battery facility, and planned tours of the IPower Energy Systems Distributed Power Generation Unit factory, and the Benton Country Wind Farm.

Speakers included Dr. Kausik Rajashekera (an expert on fuel cells), Dr. Andrew Hsu (director of the Lugar Center for Renewable Energy), and Bill Brown (a green architect). The CIS has also been able to take advantage of local resources as well, most notably from Purdue, Rose-Hulman, and IUPUI.

Slides from the presentation are shown below.

Besides our "Sections Going Green" presentation, the IEEE-USA activities included a wide variety of efforts related to professional activities and to IEEE's legislative efforts. In addition, the IEEE-USA presented a number of awards for meritorious service to the organization. Hundreds of representatives from organizations across the United States and the world attended. Summaries of the presentations are available at the IEEE-USA website www.ieee-usa.org.

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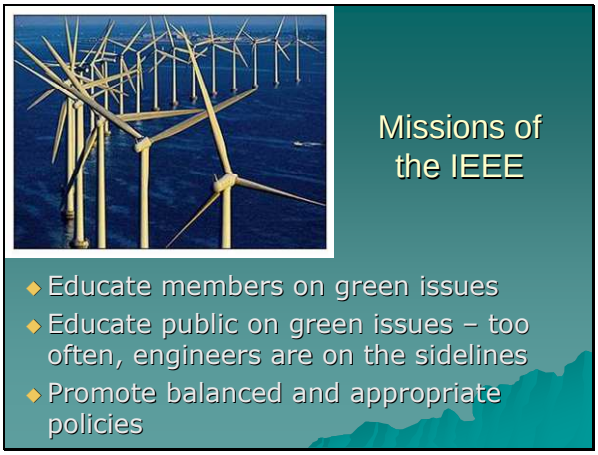
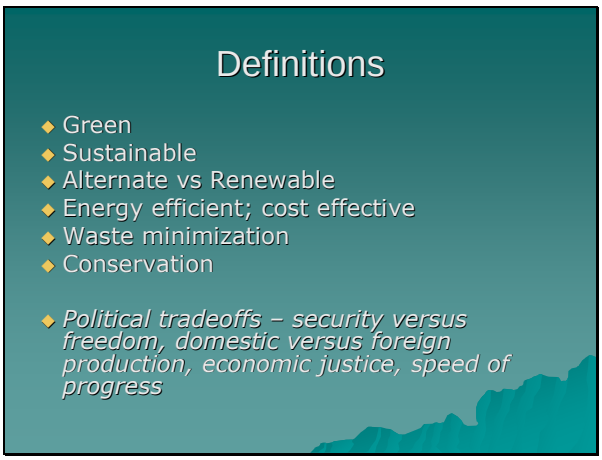
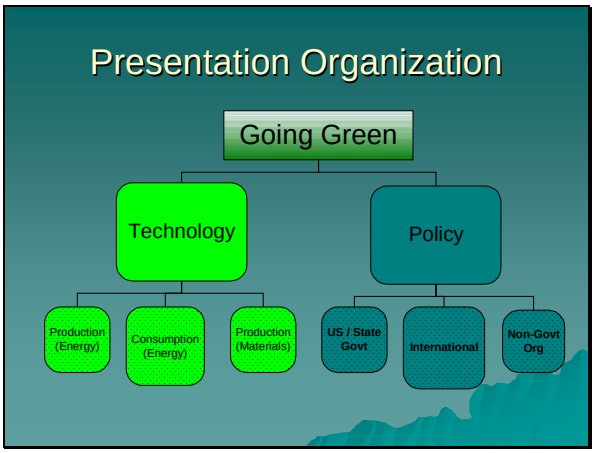






Production - Energy Sources

- Alternative
  - Clean coal / coal gasification
  - Advanced nuclear
  - Combined cycle turbines / LNG
  - Landfill gas
- Renewable
  - Wind
  - Solar
  - Biomass – bio diesel, ethanol
  - Hydro
  - Tidal

Production - Energy Sources Ideas

- Sponsoring student "green" projects
- Short course on Alternate Energy (2005)
- Talks by power companies, vendors, state agencies, NGOs.
  - Example: talk by official from Indiana Office of Energy and Defense on "Bio-Town, USA"
- Tours of installations
  - Examples – Tour of Wabash River Station; Tour of Lugar Alternate Energy Center, IUPUI, Benton County Wind Power

Production – Materials

- Too many to mention –
  - processes to make greener products (reduced environmental impact from use),
  - greener development (reduced impact from creation)
- Special interest to IEEE – computer and other electronics generation and recycling
- Water management for energy production

Transmission and Distribution

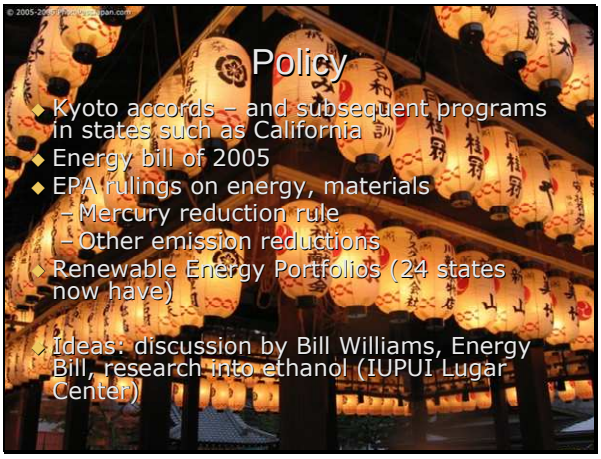
- Improved cable and conductor materials - superconducting cable – reduced losses
- Distributed generation
- Interconnection studies (IEEE Standard Development)
- Ideas – local distributed generation companies (examples: I-Power, AltairNano in Anderson IN); local cable manufacturers (General Cable)

Consumption – Transportation

- Hybrid vehicles
- Plug-in Hybrids
- All electric vehicles
- Fuel cell vehicles
  - Hydrogen economy
- Ideas – IPL has PHEV program; Fuel cells – IEEE Distinguished Speaker Kausik Rajashekara; Purdue symposium on Hydrogen economy

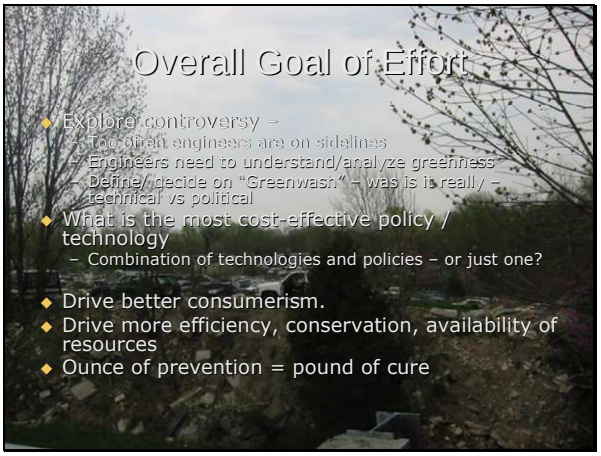
Consumption – Energy

- Green buildings (LEED) – better energy use in office buildings, homes
- Better lightning (LEDs vs fluorescents vs incandescents)
- High efficiency motors
- Recycling
- Ideas – Green architect Bill Brown (profiled in last Sunday's Indy Star) talk, Lighting experts



Political Considerations

- Green is not black and white
  - Costs
  - Tradeoffs
- *e.g. ethanol – maybe carbon positive, but is it less than oil? What about value of domestic production, and providing more income to rural areas?*
- Timelines for action – immediate versus more distant future
- What is achievable?



Additional Issues

- Other ideas – sponsoring green projects for students
- Goals for IEEE USA –
  - Provide ideas, support for advocacy
  - What to do and what to support?
  - How can IEEE USA help sections and societies address these issues?
    - Issues primers; better publicity of Distinguished Speakers

Conclusions

- Green is coming fast
- Engineers have a role to play – and the IEEE can facilitate that role
- Abundant resources – industry speakers, tours, university programs and research centers
- IEEE-USA – National Organization – resources available

Free EMC Layout and Design Software

to solve even the most complex EMC issues

As part of the curriculum in Donald Sweeney and Roger Swanberg's EMC by Your Design Seminar/Workshop students will use, and then take home free-of-charge, a copy of the proprietary EMC Layout and Design software program created by the instructors. This proven software package addresses design considerations from component level, through circuit boards, to enclosure level, including cabling and interconnects and enhances the theories presented both in the class and in the Mardiguian textbook. The four-day seminar/workshop is presented in a practical, hands-on style providing the step-by-step design process to avoid EMC problems. After the workshop attendees can put their acquired knowledge to immediate use in an optional, free, 45-minute design evaluation of their own product.

To register call Carol at 847-537-6400 or email her at cgorowski@dlsemc.com. For more information click on http://www.dlsemc.com/index.htm?class301.htm~mainFrame.

EMC by Your Design
A Practical Applications Seminar/Workshop

With free take-home computer software

October 2, 3, 6 & 7, 2008

Hilton Hotel, Northbrook, IL

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COME JOIN US FOR A FUN EVENING WITH THE INDIANAPOLIS INDIANS

It's time to put aside our engineering hats and computers and come out to Victory Field for fun and socializing. CIS-IEEE is proud to present "Picnic at Victory Field" on Friday, August 15, 2008. All members, their family and guests are invited to enjoy an all-you-can-eat buffet of hamburgers, hot dogs, BBQ chicken sandwiches, pasta salad, baked beans, Pepsi and beer and then watch the Indianapolis Indians take on the Durham Bulls. Cost for the game and buffet is just $10 for everyone 3 and older **(children under 3 are free and do not**

need a ticket). You must register and send payment by August 1st. The picnic will be from 5:30 pm to 6:45 pm. The game starts at 7:00 pm. A fireworks show will take place after the game.

To register and for more details please go the CIS-IEEE website: CIS-IEEE Web Page

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CIS-IEEE Fall Short Course on RFID

What: RFID (Radio Frequency IDentification)

Major topics:

1. History and evolution of RFID tags
2. RFID technology
3. Major applications of RFID tags
4. Potential and future developments
5. Concerns and controversies

When: Three sessions on Wednesdays: September 10, 17, and 24

Where: To be determined (in Indianapolis area)

Instructor(s): To be determined

Detailed information will be available next month on the CIS-IEEE Web Page.

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CIS PES-IAS June Meeting – Advances in SCADA

by Earl Hill, Chair PES-IAS

On June 10th the PES-IAS met to hear Mr. Don Bergert of ACS discuss advances in System Control and Data Acquisition (SCADA) technology. The meeting was held at Indianapolis Power & Light's Safety Room at 1230 Morris St, Indianapolis. Twenty-four IEEE members attended.

Mr. Bergert Addresses the PES-IAS

SCADA technology involves moving data from sensors and other equipment in the field (generally substations) to a database in the Control Center (this technology is referred to as Distributed Control Systems in industrial applications). When SCADA systems first came into use, the average utility might have 100 data "points" (separate readings returned to the Control Center) per substation. Currently, a typical number per substation might be 7500. Clearly, significantly more computing power is needed in the current regime.

Many utilities have decided to collect more data from the distribution system and to exercise more control over this system. Therefore, SCADA has been extended to include distribution monitoring system (DMS) and feeder and distribution automation. Data from the distribution system might be transmitted by wireless equipment, or by other utility communications equipment, such as fiber optic lines. The great advantage of applying SCADA is the improved outage performance. With SCADA, the utility has a much easier time locating outages, and in restoring service. This reduces both SAID (system average interruption duration – how long each customer is out on average per year) and SAIF (system average interruption frequency – how often each customer is out on average per year) for the automated line. The utility also has an easier time identifying where losses occur, which can reduce generation costs.

Another area where SCADA technology has been improved is integration with other systems, such as Geographic Information Systems (GIS), Outage Management System (OMS), and Customer Information System (CIS). SCADA is generally a real time system, while the others are near real-time or not real-time at all. However, it is still possible to integrate these systems in to one "master" database, eliminating or greatly reducing duplication of data.

Mr. Bergert demonstrated his company's tool for integration. In this demonstration, the SCADA "electric" map was overlaid with the GIS "road" map, so the location of every feeder and switch was displayed. The overlay enables the user in the Control Center to accomplish a number of tasks – first the user can identify where faults occur, and can switch equipment to isolate the fault, and to restore as many customers as possible. She/he can direct crew positioning. He/she can also identify from customer call-ins (from the OMS) where the outages are, and identify all the customers without power, even those that have not called in. The system can then automatically calculate SAID and SAIF, which is usually a time-consuming effort. Lastly, the system can also interface with automatic metering infrastructure (AMI) to monitor loading and outage data.

To wrap up his presentation, Mr. Bergert discussed the Common Information Model (CIM) used to standardize the types of data used in SCADA system. The IEC Standard for the CIM for substations is IEC_61970. Substation monitoring and reporting equipment, regardless of vendor, can now communicate with each other. This standard has been approved, and is widely used across the industry. The companion standard IEC-61968 for distribution is still under development. Upon completion, this standard should greatly facilitate distribution automation.

Chair Earl Hill Presents Mr. Bergert a Certificate of Appreciation

Special thanks to Mr. Gary Rhodes, and Ms. Jane Schmidt, who arranged for Mr. Bergert's presentation.

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Institute of Electrical and Electronics Engineers
IEEE Regional Technology Discourse
on
"Biofuels in Indiana"
Technology, Public Policy, and Future Directions

Duke Energy and the Institute of Electrical and Electronics Engineers are pleased to sponsor the inaugural IEEE Conference on Biofuels. The conference will be an all-day event, to be held on August 20th, at Duke Energy Indiana's headquarters in Plainfield, IN. The conference will provide a broad forum for discussion of the issues involved in biofuel development and use in Indiana. To this end, the conference has invited a number of leaders from industry, academia, and government to inform the public on these issues.

Date: Wednesday August 20th, 2008 Time: 8:30am – 5pm Location: Duke Energy Auditorium 1000 E. Main Street Plainfield, IN Cost: $45 in advance/$60 at the door -- which includes lunch	Sponsored by Duke Energy Open to the Public REGISTER NOW! Space is limited Organized by the IEEE

Due to the large public interest in renewable energy, we welcome members of all engineering technical societies and the public to join us for this first IEEE Regional Technology Discourse. Come learn about the Biofuels and ask questions of experts who will present information on the state of our emerging Biofuel industry in Indiana and address the pros and cons of these new technologies.

Conference speakers include the following:
Senator Beverly Gard, Environmental and Energy Committee, Indiana State Senate
Jim Stanley, President, Duke Energy Indiana
Vince Griffin, Vice President, Indiana Chamber of Commerce
Dr Thomas Mason, Professor of Economics, Rose-Hulman Institute of Technology
Dr. Peter Grossman, Professor of Economics, Butler University
Speakers from Purdue and the IUPUI Lugar Alternate Energy Center
Gerry Dick from Inside Indiana Business, will host an industry panel including speakers:

- Belinda Puetz, Countrymark
- Ray Moistner, Indiana Hardwood Lumberman's Association
- John Wittington, Integrity Biofuels

Representatives from the Indiana Office of Energy and Defense have been invited.

The agenda for the conference and a map to the Duke Energy offices in Plainfield will be available shortly at www.cis-ieee.org. Cost of the conference will be $45 before August 12th, including lunch – proceeds to benefit the IEEE Electrical Engineering Scholarship Fund.

Register at www.cis-ieee.org by August 12th for the reduced price. Admission at the door will be $60.

REGISTER NOW!

Election of Officers

Each year the CIS-IEEE nominates and elects officers from the section membership. Any CIS-IEEE member can be a candidate for office. Per the bylaws of the section, all members must be notified, via e-mail, that they have an opportunity to run for office.

Serving as a CIS-IEEE officer provides the following advantages:

- An opportunity to serve the section and to help direct its activities
- An opportunity to work more closely with colleagues in the section, and in the regional and the national IEEE organizations
- An opportunity for professional advancement through broader industry participation
- An opportunity for free pizza and pop at Executive Committee meetings

The CIS-IEEE elects officers for a one year term (except directors, who serve for two years). The Nominating Committee nominates the following for Officers for 2009 as of July 4, 2008. Any member can nominate another member up to October 1 for any position:

- Director (1 of 2 elected in 2008 (for 2009); the other will be elected in 2009 (for 2010)

Will Kassebaum

- Chairman

Steve Chen

- Vice-Chairman

Open

- Secretary

Karl Huehne

- Treasurer

Carlotta Brown

The schedule is as follows:

Announcement of Nominations October 1, 2008
Close Nominations by Petition October 28,2008
Hold Election November 15, 2008
Terms of office commence: January 1, 2009

After October 1, all new candidates must collect 25 signatures (with member ID#) from members of the CIS-IEEE to qualify (see bylaw Article IV for details at http://www.cis-ieee.org/bylaws.asp). To be placed on the ballot, please forward your name and list of signatures to the Nominating Committee.

No petitions will be accepted after October 28th.

If there are no contested contests, then the Executive Committee will approve the slate of candidates by acclamation.

For more information and to see how the Executive Committee works, come to the August 28th meeting. We meet on the 4th Thursday of every month except when the ExComm decides not to meet. The location is on the IUPUI campus, ET building, Room 209A. Everyone is welcome.

Thanks in advance for your participation in the election process.

Sincerely, the Nominating Committee

Earl Hill
eshill@loma-consulting.com

Duane Mattern
dmattern@sampledsystems.com

Alan Stillerman
astiller@ieee.org

* * *

ICES ANNUAL ALL - ENGINEERING BANQUET

The Indiana Council of Engineering Societies (ICES) exists to unite and coordinate the professional engineering societies within Indiana and to promote education in engineering, math, science, and technology.

In support of the ICES mission, the Central Indiana Section of IEEE is hosting a reception on Friday, October 17th, 2008 at 7:00 pm at the Marriott Downtown, Indianapolis. This special evening will consist of a social hour for networking with technology exhibits, a dinner reception with guest speaker Senator Richard Lugar (invited), and will conclude with presentation of the Bridge to Engineering scholarship.

The Bridge to Engineering Scholarship is intended to help offset the final year expenses and cost of attendance for a college junior enrolled in a math, science, or engineering program at an Indiana college. 2008 will mark the first presentation of this award by ICES. Tickets to this event will be available through the calendar at the CIS-IEEE Web Page for the nominal cost of $55.00 each. Looking forward to seeing you this fall.

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Opportunities to Support the 2008 ICES Reception

In-kind Sponsorship Opportunities (Sponsorship through cash considerations is also available for these items)

• Program Printing (prominent logo placement in event program)
• Ticket Printing (logo placement on tickets and program considerations)
• Invitation Printing (logo placement on invitation and program considerations)
• Postage/Mailing (logo placement in mailing and program considerations)

Advertising Opportunities

• Table Sponsorship ($100 each) – Logo in program, on table, and on seating chart.
• Table and eight reception tickets ($500) – Recognition as Table Sponsor
• Sponsored Admission ($55 each) – Donor's name in Program, and provided with ticket to sponsored guest.

Other Contributions

• Scholarship Fund Contribution (Logo Placement - $250+ contribution, and Program Considerations - $25+ contribution)
• Social Hour Refreshments (Logo Placement and Program Considerations)
• Social Hour Display/Exhibit (Program Consideration)

Exhibit and Sponsorship Guidelines

• All exhibits must conform to the theme "Alternative Energy and Green Technology"
• All exhibits should be designed to be self-explanatory for a social environment with a technically adept audience. Hosting of exhibits is strongly encouraged, but the exhibit host should not be required for the exhibit message to be conveyed.
• Exhibit setup and tear down is the responsibility of the exhibitor unless prior arrangements have been made.
• Exhibit setup is scheduled for 4:00 pm - 5:00 pm on Friday, October 17, 2008. Exhibit tear down may commence anytime after 8:00 pm. All exhibits must be removed by 11:00 pm on Friday, October 17, 2008.

• Exhibitors are allocated an area approximately eight feet wide by six feet deep. Additional space is available if requested in advance.
• Special exhibit requirements must be communicated to the event coordinator by September 21, 2008 (e.g. power, tables, additional space).
• **Each exhibitor may purchase a reception ticket for each volunteer at the discounted rate of $50 each.**
• Advertisement of specific career opportunities is not permitted at the event.
• Active recruiting and/or resume solicitation is not permitted at the event.

For more information on participating in this event, please do not hesitate to contact Daniel P. Gallagher, Event Coordinator at ICESBanquet@gmail.com, or by phone at 765 721-1159. Looking forward to seeing you this fall,

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2008 Meeting Calendar

Date	Host	Subject	Location
Fri., August 15	CIS	**Baseball Game and Picnic**	Victory Field, Indianapolis
Wed., August 20	CIS	**Biofuels Symposium**	Duke Energy, Plainfield, IN
Thu., August 28	CIS	**Executive Committee Meeting**	IUPUI, ET 209 Indianapolis
September 19-22	IEEE	**Sections Congress**	Quebec City, Canada
Thu., September 25	CIS	**Executive Committee Meeting**	IUPUI, ET 209 Indianapolis
Fri., October 17	ICES	**Annual All-engineering Banquet**	Indianapolis

... Check the Section web page for details and current information.

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Editorial Policies

Each issue of The Reporter typically references three months - the month in which it is published and the following two months. The Reporter is typically published in March, June, September, and December.

Material to be included should be submitted mid-month prior to the month it is to be published. For example, material intended for the September issue should be submitted to the Editor by August 15. The Editor will send a reminder to all IEEE Central Indiana Section entities by the 15th of the month to submit their updates.

Copy should be submitted electronically. Photographs are desirable. Advertisements are welcome. Contact the editor for layout sizes and rates.

Distribution: The Reporter is made available electronically to the approximately 1900 IEEE members within the Central Indiana Section including student members and faculty of Purdue, IUPUI, Rose-Hulman and ITT Technical Institute. Limited copies of The Reporter may be selectively distributed to non-members when it serves the aims of the Section. Examples include public, industrial, and school libraries, and other engineering societies and professional organizations. Inquiries for complimentary copies should be made to the Editor.

Central Indiana Engineering Web Links

ACEC	American Council of Engineering Companies, Indiana	acecindiana.org
ASCE	American Society of Civil Engineers	sections.asce.org/indiana
ASME	American Society of Mechanical Engineers	http://sections.asme.org/central_indiana/
ASM-INDY	American Society for Metals - Indianapolis	asm-indy.org
CINLUG	Central Indiana Linux Users Group	cinlug.org
IBEN	Indiana Biomedical Entrepreneur Network	indianabionetwork.org
ICES	Indiana Council of Engineering Societies	in-ces.org
IHIF	Indiana Health Industry Forum	ihif.org
INCOSE	International Council on Systems Engineering	www.incose.org
INDSPE	Indiana Society of Professional Engineers	indspe.org
INDYASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers	indyashrae.org
NSBE-IAE	National Society of Black Engineers - Indianapolis Alumni Extension	nsbe-iae.org
PIMCIC	Project Management Institute - Central Indiana Chapter	pmicic.org
SAE	Society of Automotive Engineers, Indianapolis	http://www.saesections.org/indiana/
Scientech	Scientech Club in Indianapolis,	scientechclub.org
SIM	Indianapolis Chapter of Society for Information Management (SIM)	SimNet.org
SWE-CI	Society of Women Engineers - Central Indiana Section	swe-ci.com
Techpoint	A diverse collection of technology-based Indiana industries.	Techpoint.org