



IEEE

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FEBRUARY 2009

An SVC for the Distribution System

Date/Time: Thursday, February 19, 2009, 11:45 AM - 1:00 PM
Speaker: Manisha Ghorai, Transmission and Distribution Planning Engineer,
AMSC Power Systems: American Superconductor
Location: Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444
Menu: Pizza buffet, salad and soft drinks (cost \$10.00, free for UW-Madison student members)
RSVP: by February 16th to David Marca via e-mail (dmarca@openprocess.com) or call 617.645.1358



Non-member guests are always welcome!

As the technologies used in industrial and commercial facilities have become more sophisticated, a reliable source of electricity has become crucial to the end user. Poor power quality can lead to reduced production capacity, damaged equipment, and major downtime, reducing overall revenues and profits. Power quality is also an issue for utilities as they try to isolate customers that cause voltage sags and flicker. The American Superconductor (AMSC) Static VAR Compensator (SVC) is a cost-effective, highly reliable solution to these power quality concerns. In this presentation, Manisha will give an overview of the AMSC SVC, examining its technology, design, applications, and benefits.

Manisha Ghorai joined American Superconductor in 2006 after graduating from the University of Wisconsin with her degree in Electrical Engineering. She currently works on the Transmission and Distribution Planning Team. She performs studies in which she analyzes transmission and distribution system problems, dealing with issues such as voltage collapse, transfer capability, wind farm interconnection, harmonics, and power quality.

Digital Video Carrier Methods for HD & SD Content

Date/Time: Thursday, March 19, 2009, 11:45 AM - 1:00 PM
Speaker: Robert J. Schaeffer, President-Senior Technologist, Technology Planners, Fond du Lac, WI
Location: Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444
Menu: Pizza buffet, salad and soft drinks (cost \$10.00, free for UW-Madison student members)
RSVP: by March 16th to David Marca via e-mail (dmarca@openprocess.com) or call 617.645.1358



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This talk will cover the various delivery technologies that are in common use to provide digital video: Over the air DTV; telephone based copper technologies of DSL, VDSL, and DSL2+; Fiber to the home PON concepts; and the CATV/HFC coaxial delivery model. The above technologies will be described in a briefing overview format. The central take away will be an appreciation of how varied technology carriers distribute digital video content.

Robert founded Technology Planners, an engineering and consulting firm, serving as President and Senior Technologist, in 1996. He is the chief consultant for optical, digital, and RF systems. He also heads the design team, researching and applying new technologies. Technology Planners focuses on providing guidance and assistance to owners and operators of broadband networks.

Robert has spent the past 35 years in the communications industry. For 23 years he served as Vice President of Engineering at Star Cablevision Group of Fond du Lac, Wisconsin. While there, he designed, built, and managed 400 cable television systems serving communities in seven states. Internationally Robert has worked in New Zealand, Mexico and the U.K.

Robert is a lifetime member of the Society of Cable Telecommunications Engineers (SCTE). He was a member of the technical advisory board at Cable Labs. He is a member of the Northeast Wisconsin section of IEEE, and has worked closely with many manufacturers. Former Wisconsin Governor, Tommy Thompson, appointed Robert, with confirmation by the State Senate, to sit on the board of directors for the Wisconsin Advanced Telecommunications Foundation (WATF) from 1995 to 2001.



Upcoming 2009 Short Courses for Engineers and Other Technical Professionals

- **Electrical Grounding of Communication Systems**
March 2-4, 2009 in Las Vegas, NV
- **Understanding and Troubleshooting VoIP Networks**
March 3-4, 2009 in Las Vegas, NV
- **Planning and Implementing Microwave Radio for Next Generation Networks**
March 4-6, 2009 in Las Vegas, NV
- **Effectively Managing Technical Teams**
March 24-26, 2009 in Madison, WI
- **DC Power System Design for Telecommunications**
April 1-3, 2009 in Orlando, FL

For further information...

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James Lemke, Ph.D., CTO, Achates Power, Inc., San Diego, CA

Volunteers Needed for 2009 Capital Science & Engineering Fair

The Capital Science & Engineering Fair was established to provide high school students from South Central Wisconsin the opportunity to showcase their research.

With its annual fair to be held February 28, 2009, on the University of Wisconsin - Madison campus, the fair inspires enthusiasm for science and engineering research among Wisconsin students. It provides a support system to assist students as they actively participate in science and engineering endeavors.



Hands-on learning is vitally important for our future scientists. The Capital Science & Engineering Fair provides students a unique opportunity to perform science and engineering and learn from University faculty and staff.

Participants also compete for an opportunity to enter the Badger State Science & Engineering Fair and the Intel International Science and Engineering Fair.

For more information, see <http://allen.neep.wisc.edu/sciencefair/>.

If anyone would like to help judge the projects, please contact:

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Improving Public Understanding of Engineering

by Pender M. McCarter

Can the United States continue to lead the world in innovation, asks the National Academy of Engineering (NAE). NAE suggests the answer may depend on how well the public understands engineering. NAE also raises a related concern of how to encourage youngsters, especially females and under-represented minorities, to consider engineering as a career option.

NAE organized a Committee on Public Understanding of Engineering Messages, and in June 2008, issued a report on "Changing the Conversation: Messages for Improving Public Understanding of Engineering." The report discusses findings from qualitative and quan-

titative research, including an online survey of 3,600 individuals. The NAE committee was headed by Don Giddens, dean of engineering at Georgia Tech, and included Leah Jamieson, 2006 IEEE president.

NAE's research suggests that the public views engineering and engineers "in a relatively positive light" as opposed to many engineers' more negative self-perceptions. Research indicated that fewer than 15 percent of those surveyed associated "boring" or "nerdy" with engineering. According to NAE, most adults and teens professed their respect for engineers and their work, although "perhaps not enough to inspire them to become engineers."

The NAE report adds: "The public has a poor idea of what engineers actually do on a day-to-day basis; and there is a strong sense that engineering is not 'for everyone,' and perhaps especially not for girls." Further, the research indicated that while students don't necessarily have a negative impression of engineers, they may feel they're not smart enough or do not enjoy math or science enough to become engineers. Teens in general rated interesting work as most important to them in choosing a career. "Making a difference" was cited as the second "most important factor" among Hispanic teens, and "important to job availability" for African American teens.

The committee tested the appeal, believability and relevance of several different engineering messages, and analyzed data on slogans to accompany the messages across several groups: teens, teen boys, teen girls, and adults. The committee found that current messages ignore vital characteristics of engineering, such as creativity, teamwork and communication.

The committee developed a positioning statement to guide future outreach activities. It describes engineering "as inherently creative and

concerned with human welfare, as well as an emotionally satisfying calling." The committee found that the four messages that tested best were: engineers make a world of difference; engineers are creative problem-solvers; engineers help shape the future; and engineering is essential to our health, happiness and safety.

The committee also found that "examples of objects and activities children were familiar with in their daily lives stimulated the most interest." These included video games, iPods, computers, cell phones and amusement parks.

The committee recommended that the engineering community examine metrics to judge effectiveness of the messages, including measurement in surveys before, during and after the deployment of new messages. Finally, it noted the need for the engineering community to consider funding, logistics and coordination of a multiyear communications campaign to improve public understanding.

As an interim step in moving toward a multimillion dollar, multi-year campaign, the committee urged the engineering community to coordinate its messages and to make them more consistent. The engineering community should use the positioning statement "which emphasizes that engineering and engineers can make a difference in the world, rather than describing engineering in terms of required skills and personal benefits."

IEEE-USA has incorporated these recommendations into its public awareness program. For example, the organization has developed an online video competition for engineering students to develop messages for teens and preteens that present engineers as "Making a World of Difference." Rather than ask the engineering students to represent the profession as "cool" to its younger target audience,

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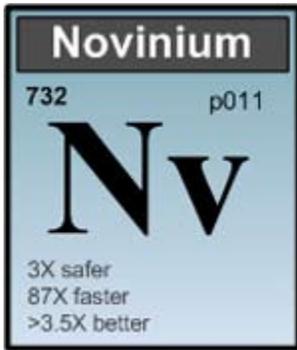
students are invited to present engineering as “socially constructive, appealing and fun.” Similarly, IEEE-USA has developed flyers for teachers to promote current educational and entertaining television programs on science, technology, engineering and math that show youngsters sharing an iPod.

The complete 149-page NAE report and an accompanying CD can be obtained from the NAE at www.nap.edu/catalog.php?record_id=12187.

Pender M. McCarter is senior public relations counselor at IEEE-USA and focuses on promoting engineering awareness, engineering diversity and technological literacy.

Comments may be submitted to todaysengineer@ieee.org.

January Meeting Presentation Available Online



Glen J. Bertini, CEO of Novinium and our January meeting presenter, has graciously made his presentation available as a PDF file. We have posted the file to the IEEE Madison Section website with the meeting notice in the archive at <http://bugsoft.com/ieee/meet2009.html>.



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