TRANSFORMERS COMMITTEE

February 6, 2008

Dear Committee Members and Guests:

You and your spouse or companion are cordially invited to attend the Spring 2008 Meeting of the IEEE/PES Transformers Committee to be held **March 16-20, 2008** in Charlotte, North Carolina. It is my pleasure, and the pleasure Shaw Energy Delivery Services to be your host for this meeting.

The location for all our meetings is **The Charlotte Westin Hotel**, 601 South College Street, situated at the southern edge of Charlotte's beautiful uptown area. The Westin Charlotte is just a short trolley-ride away from wonderful choices for dining and entertainment, both in the uptown area (financial district) and in the South End district away from uptown. The group rate for traditional guest rooms is US$159 (single and double occupancy). Guest rooms are reserved under the group name "IEEE Transformers" and can be reserved at (704) 375-2600, or toll-free from the US and Canada at 1-866-837-4148. A link to the Westin on-line reservation system is included in the Committee's website (see "Next Meeting" page). The room-block cut-off date is February 22. After that date, remaining rooms will be released to the public.

Those of you arriving by air will be landing at Charlotte-Douglas International Airport (airport code "CLT"), which is the major hub for US Air. A "Queens Transportation" shuttle bus to downtown Charlotte will cost you $23, or the taxi fare is $22. The taxi is recommended as it will take you directly to your hotel (the shuttle follows a route covering downtown hotels as needed, with The Westin being the last stop).

For those driving in, or renting a car, the hotel offers self-parking for $16 per day, or $22 per day for valet service. Charlotte and surrounding areas offer a unique blend of old fashioned southern charm and modern vistas to tease the eye. While the uptown district of Charlotte has been literally reborn over the past several decades, the surrounding residential and commercial areas remain largely untouched by the passing of time. Charlotte is a city of trees, with many beautiful neighborhoods with tree branches completely arching the street. The ambiance of these areas of Charlotte has been carefully preserved over the years, while the homes have grown more beautiful over time. For more information, you may want to visit website www.visitcharlotte.com.

The weather in Charlotte can be somewhat unpredictable during March (our greatest accumulation of snow tends to be during March). Daily temperatures range from an average high of 64°F (18°C), to nightly lows of 42°F (6°C). I suggest you pack for pleasant weather, but don't forget to include a warm coat for evenings. March also tends to be one of our wettest months in Charlotte, so plan for possibility of rain.

ON-LINE REGISTRATION

We have intentionally planned a busy schedule of opportunities, to allow you to maximize your experience in Charlotte. Use the on-line registration system to register for all tours and events. The on-line registration system can be accessed at www.transformerscommittee.org. Register by Friday, February 22 to receive the US$50 early registration discount. The on-line registration system will be disabled on Wednesday, March 12 to print name badges and to finalize counts. Note that the cost for walk-up registration for the meetings at the hotel is substantially higher than for registering on-line in advance.

SPECIAL EVENTS

Sunday, March 16 - The Biltmore House is the largest home in America. Completed in 1895 as the home of George Vanderbilt, this house is one of the most visited sites in all of the southeastern United States. At one time, the estate upon which the 250-room estate sits was comprised of 228 square miles of beautiful North Carolina mountain terrain. Surrounding the mansion are beautiful flower gardens and the vineyards beyond. The visit to the Biltmore house will include an optional visit to the nearby winery.

Sunday Evening Reception - We will gather in the Grand Ballroom of The Westin at 6:00 pm on Sunday for a few words of welcome from Jim Hicks, President of Shaw Energy Delivery Services, and for quality time of renewing friendships (and forming new ones). Hors d'oeuvres and a cash bar will be available.

Tuesday, March 18 - For the Tuesday Luncheon, Mr. Brew Barron of Duke Energy has agreed to talk to us about the recent resurgence of Nuclear Generation in the energy mix of the United States.

Wednesday, March 19 - On Wednesday evening you will have the opportunity for not only a fine dining experience, but also a unique display of the works of Norman Rockwell of Saturday Evening Post fame, including some three-dimensional representations of his famous sketches/paintings. Don't forget to bring your camera for an opportunity to become a part of his characterizations.

COMPANION TOURS

Monday, March 17 - A tour of the James Buchanan Duke Mansion and of Charlotte Historical Areas will include a group lunch at the mansion.

Tuesday, March 18 - A visit to Charlotte's premier shopping center, SouthPark Mall, will allow an opportunity to do some shopping (or just browsing), after which you will have the opportunity to tour the Mint Museum of Craft & Design. Note the two options for times to return back to The Westin.

Note that Charlotte is the boyhood home of evangelist **Billy Graham** and the site of the recently-constructed **Billy Graham Library**. We were not able to work in a tour of this famous library due to a conflict between the tour schedule and our meetings, but you may want to consider sticking around Thursday afternoon to see it. The library is located off Billy Graham Parkway, near to the Charlotte-Douglas Airport. For more information, see website at www.billygraham.org/library.

TECHNICAL TOURS

ABB in Bland, Virginia and Federal Pacific in Bristol, Virginia will offer a choice of two factory tours on Thursday afternoon. The tours are by invitation only and paper invitations have been mailed directly from these companies. More information is included in the detailed Meeting Schedule.

ADDITIONAL INFORMATION

Along with this Invitation Letter, the following information comprises Meeting Invitation Package. This information can be downloaded from the Committee's website at www.transformerscommittee.org.

1. Meeting Registration Form. This document is primarily used for those who do not have access to the Internet or need to pay by paper check or money order. It also makes a good guide to review the fees before you begin the on-line registration process. On-line registration is encouraged.
2. Detailed Meeting Schedule. An updated schedule will be posted on the committee's website approximately one week before the meeting.
3. Information Flyers:
    - Sunday Biltmore Tour
    - Monday & Tuesday Companion Tours
    - Tuesday Speaker Luncheon
    - Wednesday Evening Dinner Social
    - Technical Presentations

My wife Linda and I are very happy to host these meetings, along with Shaw Energy Delivery Services. We hope your visit will be both enjoyable and memorable. If you need further information or assistance, please do not hesitate to call me at (704) 519 5541 or to email me at robert.s.thompson@shawgrp.com.

We look forward to seeing you here in Charlotte in March!

Robert Thompson
Host, Spring 2008 Meeting
Shaw Energy Delivery Services

Use this form only if you do not have access to the Internet, or need to pay by paper check or money order. Pre-register on-line for the meeting and/or purchase meeting minutes (in paper format) using a credit card at: www.transformerscommittee.org

IEEE/PES TRANSFORMERS COMMITTEE
SPRING 2008 MEETING; MARCH 16-20, 2008
Charlotte, North Carolina USA

Attendee's Name _____

Company / Institution _____

Street Address _____

City _____ State / Prov. _____ Postal Code _____ Country _____

Telephone _____ Fax _____ E-mail _____

PES Member? ☐Yes ☐No IEEE Standards Association Member? ☐Yes ☐No IEEE Membership #: _____

Will a companion accompany you? ☐Yes ☐No Full name of companion (for nametag) _____

Indicate if vegetarian meal(s) are required for: Attendee: ☐Yes ☐No Companion: ☐Yes ☐No

Other special requirements (special diets, wheelchair, etc.): _____

Attendee Registration Fee Includes: Meeting Attendance, Sunday Evening Reception, breaks, and 4 breakfasts (M, T, W, Th)
Companion Registration Fee Includes: Sunday Evening Reception and 4 breakfasts (M, T, W, Th)

-- Refund provided **ONLY** if the request is received **by March 12** (by confirmed email, postal mail or fax to the contacts below) --
-- There is a US$25.00 service charge for a refund of the entire registration (US$10 for a partial refund) --

NOTE: Complete meeting registration (with fees) is necessary to attend ANY event (including socials & tours)

Meeting Registration Fees (all fees in US$ funds)	**On or Before Feb. 22**	**After Feb 22, on or before March 12**	**At the Meeting**	**Total**
Attendee - IEEE Member (will be verified with IEEE)	$175	$225	$325	
Attendee - non-member	$200	$250	$350	
Attendee - IEEE Life or Committee Emeritus (will be verified)	$50	$100	$200	
Spouse or Companion, including children age 10 and over	$75	$100	$200	

** Note: Spouses/companions & children must be registered for the meeting (with above fees) to attend any tour or social event. **

Sunday Evening Reception (included in above registration fee) Attendee: ☐Yes ☐No, Companion: ☐Yes ☐No **-0-**

Monday Luncheon: Standards Develop. Review Meeting (Activity Chairs encouraged to attend) # ____ @ $20 _____

Tuesday Luncheon: Speaker, Mr. Brew Baron, Chief Nuclear Officer, Duke Energy # ____ @ $30 _____
Indicate selection for Tuesday Luncheon: Beef ____, Chicken ____, Vegetarian ____

Spouse/Companion Tours: Monday - Duke Mansion and Historic Charlotte, includes lunch # ____ @ $50 _____
Tuesday - SouthPark Mall and Mint Museum, lunch on your own # ____ @ $25 _____

Wednesday Evening Event: Dinner Social at the Discovery Place # ____ @ $65 _____
Indicate selection for Dinner Social: Pork ____, Chicken ____, Vegetarian ____

Special Sunday Day-Tour: Biltmore Estate (limited attendance) # ____ @ $85 _____

PES Polo Shirt, dark blue with beige trim. XXL, XL, L sizes only. Clearance priced! # ____ @ $15 _____
Note: This is the same shirt offered at the Fall 2007 meeting.

Meeting Minutes, paper format** (can be purchased with or without meeting registration) # ____ @ $40 _____

** The primary source for Meeting Minutes is the Committee's web-site.
Printed minutes (in paper format) can be purchased and will be mailed at a later date.

TOTAL REMITTED -- US$ _____
All funds in US dollars

METHODS OF PAYMENT: 1. Pre-register on-line with a credit card (preferred). 2. Mail form with bank check or money order to:
IEEE/PES Transformers Committee; 13110 Birch Drive, Suite 148, PMB 330; Omaha, Nebraska 68164 USA

Fax number and email (in case of later cancellation): 816-222-0828, transformers@ieee.org

Check or money order - Make payable to: **"IEEE/PES Transformers Committee"**

Checks not issued by a US Bank must add US$25.00 for processing fee.

Mailed registrations without proper payment will not be accepted.

US Tax ID No. 13-1656633, Canadian Business No. 12563 4188, Euro Tax Registration No. EU826000081

IEEE/PES TRANSFORMERS COMMITTEE

www.transformerscommittee.org
Spring 2008 Meeting; March 16-20, 2008
Hosted by Robert Thompson and Shaw EDS, Inc.
Charlotte Westin Hotel; Charlotte, North Carolina USA

NOTES: See Page 5 for a key to abbreviations. A vertical line in the left margin indicates a noteworthy revision since last revision.

DATE/TIME	ACTIVITY	SUB-COM	ACTIVITY CHAIR	ROOM CAP/ARR/AV	MEETING ROOM (Floor)
Saturday, March 15 (no meeting registration this day)					
	No Meeting Registration, No Meetings, No Social Events				
Sunday, March 16					
8:00 am - 4:00 pm	Sunday Day Tour: "Biltmore Estate". Advanced Registration Necessary. Limited Attendance. -- The bus departs the Westin at 8:00 am and return ~4:00 pm. Includes lunch. Eat breakfast beforehand. -- Contact Ms. Jackie Panos at (704) 331-1316 or jackie.panos@shawgrp.com for questions.				
1:00 pm - 5:30 pm	Meeting Registration (only open until 5:30 pm)				Grand Promenade (Level 2)
2:00 pm - 5:30 pm	Administrative SC -- closed meeting, by invitation only	Admin.	T. Prevost	24 US (w/snack buffet)	Harris Room (Level 2)
2:00 pm - 5:30 pm	NEMA Transformers -- closed meeting, by invitation only	++	C. Drexler	15 US (w/beverages)	Trade Room (Level 2)
6:00 pm - 8:00 pm	Welcome Reception -- All Attendees & Companions are Welcome!			350 Reception	Grand Ballroom CD (Level 2)
Monday, March 17 (No Break Sponsors at this Meeting *)**					
7:00 am - 5:00 pm	Meeting Registration				Grand Promenade (Level 2)
7:00 am - 6:00 pm	Internet Cafe'			12 SQ	Sharon Room
7:00 am - 7:50 am	Newcomers Orientation Breakfast Mtg (arrive early!) -- Newcomers & Guests are encouraged to attend!		E. Smith	35 CL	Tryon Room (Level 2)
7:00 am - 7:45 am	Distribution SC Coordination Meeting (closed mtg)		K. Hanus	14 CONF	Fireside Room (Ember Grill Rest.)
7:00 am - 8:00 am	Breakfast - Attendees (no companions please)			250 RT (8/tbl)	Grand Ballroom D
8:00 am - 9:00 am	Breakfast - Companions (no meeting attendees please)			60 RT (8/tbl)	Providence Ballroom 1 (near Lobby)
9:15 am - 4:00 pm	Companion Tour: "Tour of Duke Mansion and Charlotte Historical Areas." Includes lunch at the Mansion. -- Advance registration required. Bus departs the Westin Hotel at 9:15 am and returns around 4:00 pm.				
	~~WG Elect. Test Data Report. C57.12.37~~	~~Dist~~	Moved to Tuesday afternoon, 3:15 pm.		
8:00 am - 10:45 am	IEC TC-14 Technical Advisory Group (all interested individuals welcome)	++	P. Hopkinson	14 CONF (w/perim. chairs)	Stonewall Room
8:00 am - 9:15 am	WG Dry-Type Reactors C57.16	Dry	R. Dudley	25 CL	Trade
8:00 am - 9:15 am	WG 3-ph Underground Distribution Transformers C57.12.24	UTNP	G. Termini	35 CL	Independence
8:00 am - 9:15 am	TF Arc Furnace Transformers C57.17	Power	D. Corsi	50 CL	Tryon
8:00 am - 9:15 am	TF Electrical Partial Discharge Measurements Guide C57.113	DiTests	E. Lemke	80 CL S3	Grand Ballroom A
8:00 am - 9:15 am	Short Circuit Tests Guide C57.133 and revision to C57.12.90, Section 12	PCS	M. Fortin	100 CL S3	Grand Ballroom B
8:00 am - 9:15 am	WG Transformer Monitoring C57.143	Power	D. Chu/A. Lux	150 CL S3	Grand Ballroom C
9:15 am - 9:30 am	*Break (beverages only)*			Grand Promenade	

*** Contact Joe Watson (joe_watson@ieee.org) if you are interested in sponsoring coffee-breaks at a future meeting.

DATE/TIME	ACTIVITY	SUB-COM	ACTIVITY CHAIR	ROOM CAP/ARR/AV	MEETING ROOM
Monday, March 17 (continued)					
9:30 am - 10:45 am	WG Sealed Dry-Type Power Transformers C57.12.52	Dry	S. Kennedy	25 CL	Trade
9:30 am - 10:45 am	WG Liquid-immersed Secondary Network Transformers C57.12.40	UTNP	B. Klaponski	35 CL	Independence
9:30 am - 10:45 am	WG Revision of C57.12.10	Power	J. Arteaga	50 CL	Tryon
9:30 am - 10:45 am	WG Overhead Distribution Transformers C57.12.20	Dist	A. Wilks/ T.Cooper	80 CL S3	Grand Ballroom A
9:30 am - 10:45 am	TF Furan Tests **(New!)**	IL	K. Haggerty	100 CL S3	Grand Ballroom B
9:30 am - 10:45 am	WG PCS Rev. to Test Code C57.12.90	PCS	M. Perkins	150 CL S3	Grand Ballroom C
10:45 am - 11:00 am	*Break (beverages only)*			Grand Promenade	
	~~WG Shunt Reactors C57.21~~	~~PCS~~	Will not meet. Successful ballot, submitted to RevCom.		
11:00 am - 12:15 pm	WG Dry-Type Gen. Require. C57.12.01	Dry	J. Sullivan	25 CL	Trade
11:00 am - 12:15 pm	(TBD)			35 CL	Independence
11:00 am - 12:15 pm	WG Control Cabinets PC57.148	Power	J. Watson	50 CL	Tryon
11:00 am - 12:15 pm	WG 1-ph Padmount Distribution Transformers C57.12.38 (12.21 & 12.25)	Dist	A. Ghafourian/ I. Ares	80 CL S3	Grand Ballroom A
11:00 am - 12:15 pm	WG Revision to Low Frequency Tests	DiTests	B. Poulin	100 CL S3	Grand Ballroom B
11:00 am - 12:15 pm	WG Thermal Evaluation of Power and Distribution Transformers C57.100	IL	R. Wicks	150 CL S3	Grand Ballroom C
12:15 pm - 1:30 pm	Lunch Meeting: Standards Development Review -- All activity chairs are encouraged to attend. -- Advance reservation required ($20 for box lunch). -- No paper tickets. Admission verified at the door.		B. Bartley	120 RT (8/tbl)	Grand Ballroom D
1:45 pm - 3:00 pm	WG Thermal Evaluation C57.12.56/60	Dry	R. Wicks	25 CL	Trade
1:45 pm - 3:00 pm	**SC HVDC Converter Transformers and Smoothing Reactors**	HVDC	R. Dudley	35 CL	Independence
1:45 pm - 3:00 pm	WG 3-ph Padmount Distribution Transformers C57.12.34	Dist	R. Stahara/ S. Shull	50 CL	Tryon
1:45 pm - 3:00 pm	WG Tap Changer Performance C57.131	Power	W. Henning	80 CL S3	Grand Ballroom A
1:45 pm - 3:00 pm	TF Special Dielectric Test Issues **(New!)**	DiTests	B. Forsyth	100 CL S3	Grand Ballroom B
1:45 pm - 3:00 pm	WG Frequency Response Analysis (FRA) Guide PC57.149	PCS	C. Sweetser	150 CL S3	Grand Ballroom C
3:00 pm - 3:15 pm	*Break (beverages and treats)*			Grand Promenade	
	~~WG 1-ph Submersible Distribution Transformers C57.12.23~~	~~UTNP~~	Will not meet. Guide is complete and ready for ballot.		
3:15 pm - 4:30 pm	Joint WG Optical Instrument Transf. C57.13/PSIM P1601	IT/PSIM	Rahmatian/ Gilleland	25 CL	Trade
3:15 pm - 4:30 pm	WG Dry-Type Test Code C57.12.91	Dry	D. Foster	35 CL	Independence
3:15 pm - 4:30 pm	TF IEEE-IEC Cross Reference	Stds	J. Sim	50 CL	Tryon
3:15 pm - 4:30 pm	WG Transf. Paralleling Guide **(New!)**	Power	T. Jauch	80 CL S3	Grand Ballroom A
3:15 pm - 4:30 pm	WG Impulse Test Guides C57.98 & C57.138	DiTests	A. Molden	100 CL S3	Grand Ballroom B
3:15 pm - 4:30 pm	WG PCS Revisions to C57.12.00	PCS	S. Snyder	150 CL S3	Grand Ballroom C
4:30 pm - 4:45 pm	*Break (beverages only)*			Grand Promenade	
4:45 pm - 6:00 pm	Presentation #1: "Short Circuit Strength and Testing", by Marcel Fortin, Juergen Gerth, Richard McLaughlin & Pierre Riffon. Sponsored by PCS. **			200 CL S3 (add 50-75 TH seats in rear)	Grand Ballroom C
6:30 pm - 8:00 pm	NEMA Power Transformer Interest Dinner Meeting Open to member and non-member power transformer manufacturers. Dinner sponsored by NEMA. Contact John Caskey at joh_caskey@nema.org for more details.			20 US	Harris Room

** Contact N. Kent Haggerty (n.kent.haggerty@ieee.org) if you are interested in making a technical presentation at a future meeting.

DATE/TIME	ACTIVITY	SUB-COM	ACTIVITY CHAIR	ROOM CAP/ARR/AV	MEETING ROOM
Tuesday, March 18 ***					
	No NEMA ST-1/ST-20 Meeting				
7:00 am - 12:00 pm	Meeting Registration				Grand Promenade
7:00 am - 6:00 pm	Internet Cafe'			12 SQ	Sharon Room
7:00 am - 8:00 am	Breakfast - Attendees (no companions please)			250 RT (8/tbl)	Grand Ballroom D
8:00 am - 9:00 am	Breakfast - Companions (no meeting attendees please)			60 RT (8/tbl)	Providence Ballroom 1 (near Lobby)
9:15 am - 4:30 pm	Companion Tour: "SouthPark Mall and Mint Museum of Craft + Design". -- Advance registration required. Lunch on your own. -- Bus departs Westin Hotel at 9:15 am and returns at 4:30 pm (see flyer for details on optional early return).				
8:00 am - 9:15 am	WG Test Requirements for HV Instrument Transformers C57.13.5	IT	R. McTaggart/ P. Riffon	25 CL	Trade
8:00 am - 9:15 am	TF Transf. Tank Rupture & Mitigation	Power	P. Zhao	35 CL	Independence
8:00 am - 9:15 am	WG Enclosure Integrity C57.12.28, C57.12.29, C57.12.31, C57.12.32	Dist	R. Olen/ D. Mulkey	50 CL	Tryon
8:00 am - 9:15 am	WG Rev. Field Test Guide IEEE 62	Stds	J. Verner	80 CL S3	Grand Ballroom A
8:00 am - 9:15 am	WG Natural Ester-based Fluids C57.147	IF	P. McShane	100 CL S3	Grand Ballroom B
8:00 am - 9:15 am	WG Switching Transients Induced by Transf./Breaker Interaction PC57.142	PCS	R. Degeneff	150 CL S3	Grand Ballroom C
9:15 am - 9:30 am	*Break (beverages only)*			Grand Promenade	
9:30 am - 10:45 am	WG Terminal Markings C57.12.70	Stds	S. Shull	25 CL	Trade
9:30 am - 10:45 am	WG Neutral Ground. Devices PC57.32	PCS	S. Schappell	35 CL	Independence
9:30 am - 10:45 am	TF Functional Life Tests, De-energized Tap Changers (DETC)	Power	P. Hopkinson	50 CL	Tryon
9:30 am - 10:45 am	TF GSU Bushing Standardization	Bush	L. Recksiedler	80 CL S3	Grand Ballroom A
9:30 am - 10:45 am	TF DGA Natural Ester Fluids **(New!)**	IF	P. Boman	100 CL S3	Grand Ballroom B
9:30 am - 10:45 am	WG Revision to Loading Guide C57.91	IL	T. Raymond	150 CL S3	Grand Ballroom C
10:45 am - 11:00 am	*Break (beverages only)*			Grand Promenade	
11:00 am - 12:15 pm	WG Loss Tolerance and Measurement	PCS	E. teNyenhuis	25 CL	Trade
11:00 am - 12:15 pm	WG Phase-shift Transf. Guide C57.135	Power	J. Sim	35 CL	Independence
11:00 am - 12:15 pm	TF External Dielectric Clearances **(New!)**	DiTests	E. Davis	50 CL	Tryon
11:00 am - 12:15 pm	TF Transformer Efficiency and Loss Evaluation (DOE Activity)	Dist	P. Hopkinson	80 CL S3	Grand Ballroom A
11:00 am - 12:15 pm	WG Guide for DGA in LTCs C57.139	IF	F. Jakob	100 CL S3	Grand Ballroom B
11:00 am - 12:15 pm	WG Temperature Rise Test Procedures in Section 11 of C57.12.90	IL	P. Powell	150 CL S3	Grand Ballroom C
12:15 pm - 1:30 pm	Speaker Luncheon by Mr. Brew Barron, Duke Energy -- Advance registration is necessary. -- Paper tickets are not provided. Admission verified at the door.			160 CL (8/tbl) with elevated table for 5	Grand Ballroom D
1:45 pm - 3:00 pm	WG Revision to IEEE 638	Power	C. Swinderman	25 CL	Trade
1:45 pm - 3:00 pm	WG HVDC Bushings C57.19.03 **(New!)**	Bush	F. Elliott	35 CL	Independence
1:45 pm - 3:00 pm	WG Sound Level Measurement Guide	ASV	J. Puri	50 CL	Tryon
1:45 pm - 3:00 pm	WG Voltage Step Regulators C57.15	Dist	Colopy/Kennedy	80 CL S3	Grand Ballroom A
1:45 pm - 3:00 pm	WG Revision to Gas Guide C57.104	IF	R. Ladroga	100 CL S3	Grand Ballroom B
1:45 pm - 3:00 pm	WG Dielectric Test Tables, Liquid-filled	DiTests	P. Hopkinson	150 CL S3	Grand Ballroom C
3:00 pm - 3:15 pm	*Break (beverages and treats)*			Grand Promenade	

*** Contact Joe Watson (joe_watson@ieee.org) if you are interested in sponsoring coffee-breaks at a future meeting.

DATE/TIME	ACTIVITY	SUB-COM	ACTIVITY CHAIR	ROOM CAP/ARR/AV	MEETING ROOM
Tuesday, March 18 (continued)					
	~~WG for Bar Coding Distribution Transformers C57.12.35~~	~~Dist~~	Will not meet. Revised standard has been published.		
3:15 pm - 4:30 pm	WG Semiconductor Rectifier Transformers C57.18.10	PCS	S. Kennedy	25 CL	Trade
3:15 pm - 4:30 pm	WG Bushing Application Guide C57.19.100	Bush	T. Spitzer	35 CL	Independence
3:15 pm - 4:30 pm	TF Guide for Retrofill of Natural Ester Fluids **(New!)**	IF	J. Graham	50 CL	Tryon
3:15 pm - 4:30 pm	WG Electronic Test Data Reporting C57.12.37	Dist	Hollingsworth/ Callsen	80 CL S3	Grand Ballroom A
3:15 pm - 4:30 pm	WG Transportation Issues Guide	Power	G. Anderson	100 CL S3	Grand Ballroom B
3:15 pm - 4:30 pm	WG Revision to Impulse Tests	DiTests	P. Riffon/ P. Heinzig	150 CL S3	Grand Ballroom C
4:30 pm - 4:45 pm	*Break (beverages only)*			Grand Promenade	
4:45 pm - 6:00 pm	Presentation #2: "US National Energy Policy", by Phil Hopkinson and Nigel McQuin. Sponsored by PCS. **			200 CL S3 (add 50-75 TH seats in rear)	Grand Ballroom C
Wednesday, March 19 * **					
	No Meeting Registration, No Companion Tours				
7:00 am - 6:00 pm	Internet Cafe'			12 SQ	Sharon Room
7:00 am - 8:00 am	Breakfast - Attendees (no companions please)			200 RT (8/tbl)	Grand Ballroom D
8:00 am - 9:30 am	Breakfast - Companions (no meeting attendees please)			60 RT (8/tbl)	Providence 1
7:00 am - 7:45 am	**SC Meetings Planning** Get breakfast in Ballroom D and take to Ballroom A. Arrive early!	Mtgs	G. Anderson	50 CL S3	Grand Ballroom A
8:00 am - 9:15 am	EL&P Delegation (Users only meeting)	++	K. Hanus	30 CL	Independence
8:00 am - 9:15 am	**SC Instrument Transformer**	IT	J. Smith	50 CL S3	Grand Ballroom A
8:00 am - 9:15 am	**SC Audible Sound & Vibration**	ASV	J. Puri	100 CL S3	Grand Ballroom B
8:00 am - 9:15 am	**SC Insulation Life**	IL	D. Platts	200 CL S3	Grand Ballroom C
9:15 am - 9:30 am	*Break (beverages only)*			Grand Promenade	
9:30 am - 10:45 am	**SC UG Transf. & Network Protectors**	UTNP	C. Niemann	50 CL S3	Grand Ballroom A
9:30 am - 10:45 am	(TBD)			100 CL S3	Grand Ballroom B
9:30 am - 10:45 am	**SC Dielectric Tests**	DiTests	L. Wagenaar	200 CL S3	Grand Ballroom C
10:45 am - 11:00 am	*Break (beverages only)*			Grand Promenade	
11:00 am - 12:15 pm	(TBD)			50 CL S3	Grand Ballroom A
11:00 am - 12:15 pm	**SC Insulating Fluids**	IF	R. Ladroga	100 CL S3	Grand Ballroom B
11:00 am - 12:15 pm	**SC Performance Characteristics**	PCS	R. Girgis	200 CL S3	Grand Ballroom C
12:15 pm - 1:30 pm	Lunch (on your own)				
1:30 pm - 2:45 pm	**SC Dry Type**	Dry	C. Johnson	50 CL S3	Grand Ballroom A
1:30 pm - 2:45 pm	(TBD)			100 CL S3	Grand Ballroom B
1:30 pm - 2:45 pm	**SC Power Transformers**	Power	T. Lundquist	200 CL S3	Grand Ballroom C
2:45 pm - 3:00 pm	*Break (beverages and treats)*			Grand Promenade	

** Contact N. Kent Haggerty (n.kent.haggerty@ieee.org) if you are interested in making a technical presentation at a future meeting.
*** Contact Joe Watson (joe_watson@ieee.org) if you are interested in sponsoring coffee-breaks at a future meeting.

KEY

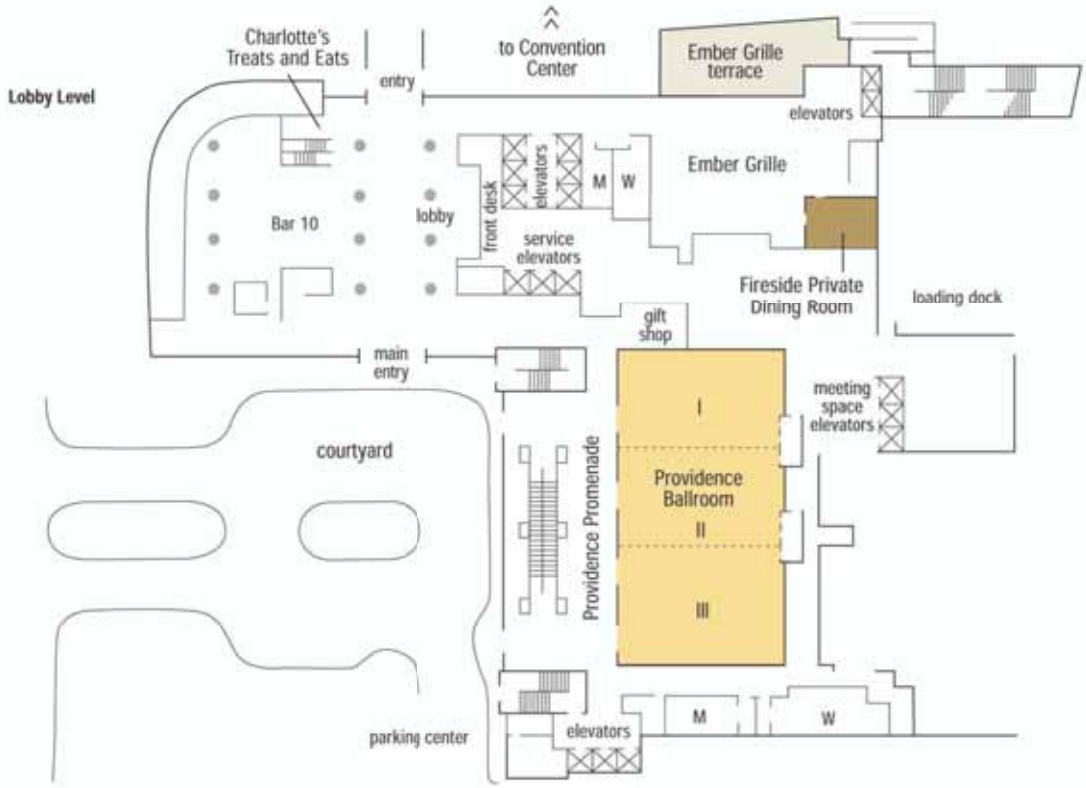
Note: A PC projector will be furnished in each meeting room. Arrive early to ensure that equipment operates/syncs correctly. Overhead projectors are available in the meeting registration area.

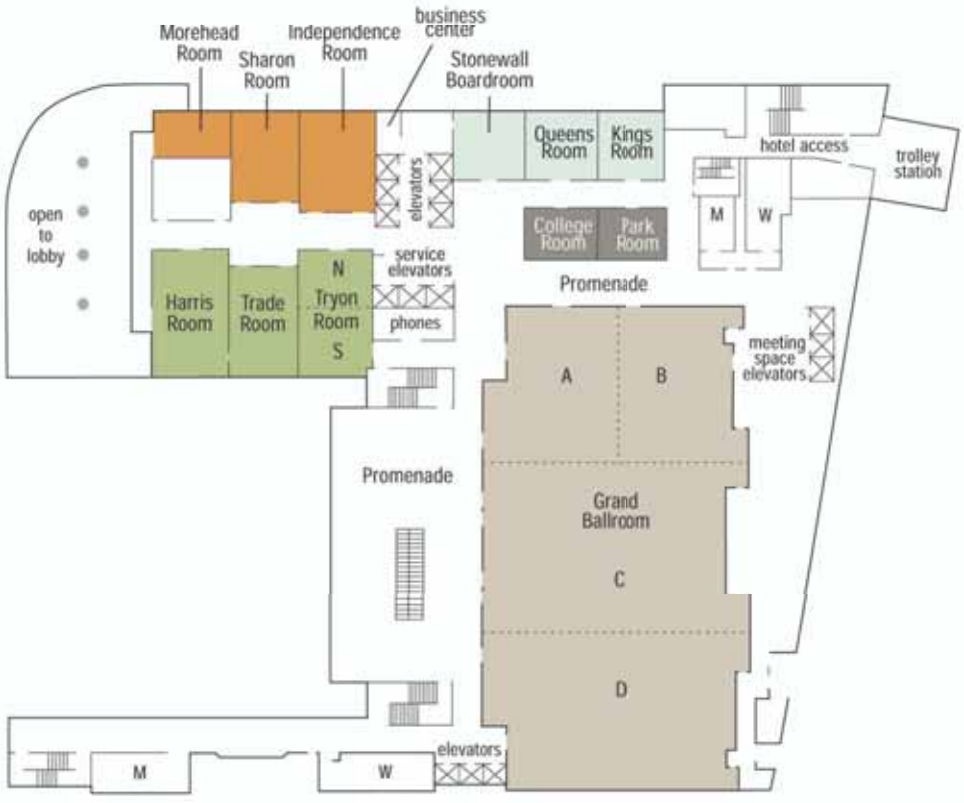
> -- activity continued into another session / from another session
++ -- not a Transformers Committee activity TBD = "To Be Determined"
FC = flip chart; S1 = sound (see note)
S2 = stand mic in front only; S3 = one stand mic in front & stand mic(s) at mid-room
CL -- classroom seating (w/head table for 2-3)
TH -- theater seating (with head table for 2-3)
RT -- multiple roundtables (8-9/table)
US -- U-shape table

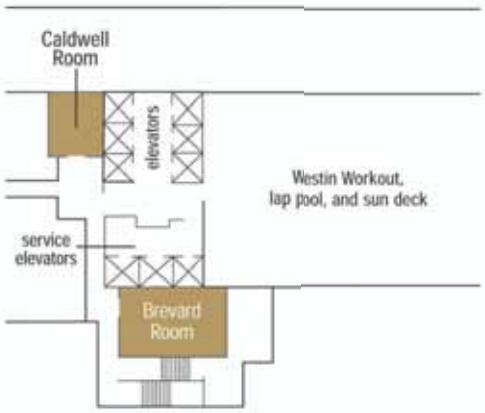
DATE/TIME	ACTIVITY	SUB-COM	ACTIVITY CHAIR	ROOM CAP/ARR/AV	MEETING ROOM
Wednesday, March 19 (continued)					
3:00 pm - 4:15 pm	(TBD)			50 CL S3	Grand Ballroom A
3:00 pm - 4:15 pm	**SC Bushings**	Bush	F. Elliott	100 CL S3	Grand Ballroom B
3:00 pm - 4:15 pm	**SC Distribution Transformers**	Dist	K. Hanus	200 CL S3	Grand Ballroom C
4:15 pm - 4:30 pm	*Break (beverages only)*			Grand Promenade	
4:30 pm - 5:30 pm	**SC Transformer Standards**	Stds	B. Bartley	100 CL S3	Grand Ballroom B
6:00 pm - 10:00 pm	Dinner Social: Dinner at the "Discovery Place". Advance registration is necessary. -- Buses begin boarding at 5:45 pm. The last bus departs at 6:15 pm. All buses return before 10:00 pm. -- Paper tickets will not be provided. Admission will be verified with a registration list as you board the bus.				
Thursday, March 20					
	No Meeting Registration, No Companion Tours, No Internet Cafe', No EPRI Meeting				
7:00 am - 8:00 am	Breakfast - Attendees (no companions please)			200 RT (6/tbl)	Grand Ballroom D
8:00 am - 9:30 am	Breakfast - Companions (no meeting attendees please)			50 RT(8/tbl)	Providence 1
8:00 am - 9:45 am >	General Session, Transformers Committee -- All attendees are encouraged to attend. -- See separate document for meeting agenda.		T. Prevost	200 CL S1 50 TH elevat. table for 4	Grand Ballroom C
9:45 am - 10:00 am	*Break (beverages only)*			Grand Promenade	
> 10:00 am - 11:30 am	General Session, Transformers Committee		T. Prevost	200 CL S1 50 TH	Grand Ballroom C
12:00 pm - 9:00 pm	Technical Tour #1: ABB Dry-Type Transformers Facility in Bland, Virginia. By Invitation Only. Invitations will be mailed directly from ABB. Contact Randy Bridges at (276) 688-1505 or randy.bridges@us.abb.com for more information. Includes a box lunch on the bus and dinner that evening. The bus will depart the Westin Hotel at 12:00 pm and return around 9:00 pm.				
12:00 pm - 10:30 pm	Technical Tour #2: Federal Pacific Transformer & Switchgear Facility in Bristol, Virginia. By Invitation Only. Invitations will be mailed directly from Federal Pacific. Contact Ms. Jody Dutcher at (276) 645-8238 or jdutch@federalpacific.com for more information. Includes a box lunch on the bus and dinner in Bristol, VA. The bus will depart the Westin Hotel at 12:00 pm and return around 10:30 pm.				
Friday, March 21					
	No Transformer Committee Meetings, No Internet Cafe', No EPRI Meeting				

FACILITIES MAP

THE WESTIN
CHARLOTTE







IEEE/PES TRANSFORMERS COMMITTEE

General Session - Spring 2008 Meeting
Thursday, March 20, 2008

Chair: Thomas A. Prevost Vice Chair: J. Edward Smith Secretary: Bill Chiu

1.	Chair's Remarks and Announcements	Thomas A. Prevost
2.	Approval of Minutes from Fall 2007 Meeting	Thomas A. Prevost
3.	Administrative Subcommittee	Thomas A. Prevost
4.	Vice Chair's Report	J. Edward Smith
5.	Transformer Standards	William H. Bartley
6.	Recognition and Awards	Donald J. Fallon
7.	New Business	Thomas A. Prevost
8.	Report of Technical Subcommittees	
	8.1. Insulation Life	Donald W. Platts
	8.2. Performance Characteristics	Ramsis S. Girgis
	8.3. Power Transformers	Thomas G. Lundquist
	8.4. Underground Transformers & Network Protectors	Carl G. Niemann
	8.5. Audible Sound and Vibration	Jeewan L. Puri
	8.6. Bushings	Fred E. Elliott
	8.7. Dry Type Transformers	Charles W. Johnson
	8.8. Distribution Transformers	Kenneth S. Hanus
	8.9. Dielectric Tests	Loren B. Wagenaar
	8.10. HVDC Converter Transformers & Reactors	Richard F. Dudley
	8.11. Instrument Transformers	James E. Smith
	8.12. Insulating Fluids	Richard K. Ladroga
9.	Editor's Report	John C. Crouse
10.	Meetings Planning Subcommittee	Gregory W. Anderson
11.	Reports of Liaison Representatives	
	11.1. Standard Coordinating Committee No. 4	Paulette Payne Powell
	11.2. IEC TC-14 Technical Advisor to USNC	Philip J. Hopkinson
	11.3. CIGRE	Jean-Christophe Riboud
12.	Old Business	Thomas A. Prevost
13.	New Business (further discussion as needed)	Thomas A. Prevost

SPEAKER LUNCHEON
12:15 - 1:30 pm, Tuesday, March 18, 2008

Luncheon Registration

- To join us for the luncheon, register on-line at www.transformerscommittee.org
- Indicate your meal selection (beef, chicken or vegetarian).
- Paper tickets will not be provided. Admission to the event and meal selection will be verified with a registration list at the door.

Luncheon Topic

The topic will be the renewed interest in nuclear power plant construction, the greening of energy delivery methods world-wide, and the issues surrounding global warming that have cause this resurging interest in nuclear power.

Guest Speaker

Henry B. Barron Jr.
Group Executive and Chief Nuclear Officer
Duke Energy

Brew Barron is Group Executive and since 2004 he has been Chief Nuclear Officer for Duke Energy. He is responsible for the safe and efficient operation of the company's three nuclear generating stations, McGuire, Oconee and Catawba.

He joined Duke Power in 1972 as an engineer at the Oconee Nuclear Station near Seneca, S.C. He served in plant engineering and operations management roles at McGuire Nuclear Station near Huntersville, N.C., for 10 years. He was named Superintendent of Operations for Catawba Nuclear Station near Clover, S.C. in 1986; Station Manager for Oconee Nuclear Station in 1990; and Manager of the Nuclear Assessment and Issues Division for the Nuclear Generation Department in 1994.

He served as Vice President and General Manager of Nuclear Operations at the Department of Energy's Idaho National Engineering Laboratory from 1994 through 1996, as part of the Duke Engineering & Services subsidiary. Barron was named VP of McGuire Nuclear Station in 1996. He was named Senior VP of Nuclear Operations in September 2002. From 2002 through 2003, he served as Chairman of the Board of Governors for Duke, Cogema, Stone & Webster LLC, which is responsible for the design, construction, operation and deactivation of a Department of Energy facility to produce nuclear fuel from excess weapons plutonium.

A native of Fair Haven, N.J., Barron graduated from the University of Virginia with a BS degree in nuclear engineering. He has held a Nuclear Regulatory Commission-issued reactor operator license for Duke Power's Oconee Nuclear Station and a senior reactor operator license for McGuire Nuclear Station. He is past chairman of the Executive Committee of the Westinghouse Owners Group. He is also a past member of the American Nuclear Society.

Barron was born in 1950. He and his wife, Jacqueline, have two daughters and five grandchildren.

DAY TRIP
ATTENDEES & SPOUSES/COMPANIONS
Sunday, March 16, 2008

8:00 am *- Bus departs for* ***Biltmore Estate***
10:00 am *- Arrives at destination*
Noon *- Group Lunch at Stable Café*
2:00 pm *- Bus departs for Charlotte*
4:00 pm *- Arrives back at The Westin*

Biltmore Estate Highlights

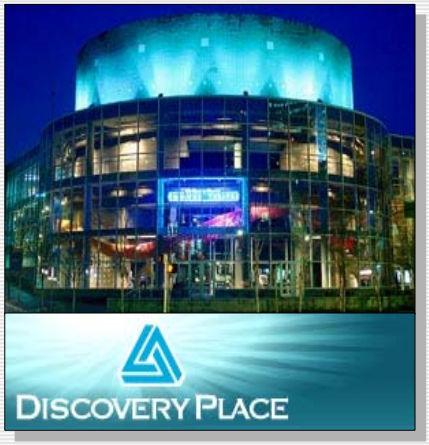
For guests arriving early, we have arranged for a wonderful Sunday tour of America's most renowned castle, **The Biltmore Estate**, which is located in Asheville, North Carolina, about 2 hours from Charlotte. Here's what's planned for your enjoyment.

- **A tour of the Biltmore House with audio guide**
- **A Group Lunch at The Stable Café**
- ***Following lunch you may:***
  - – Visit the various gift shops on the grounds,
  - – Visit the nearby winery, or
  - – Stroll through the beautiful gardens designed by America's foremost landscape architect, Frederick Law Olmsted.
- **A return to Charlotte in time for Sunday night Reception**

TRIP LIMITED TO FIRST 54 TO SIGN-UP

Located beside Biltmore House, the Stable Café is a19th-century stable which has been transformed into a fascinating café where guests dine in renovated horse stalls. It offers a friendly atmosphere in an environment of relaxed elegance.

DINNER SOCIAL
Wednesday Evening
March 19, 2008

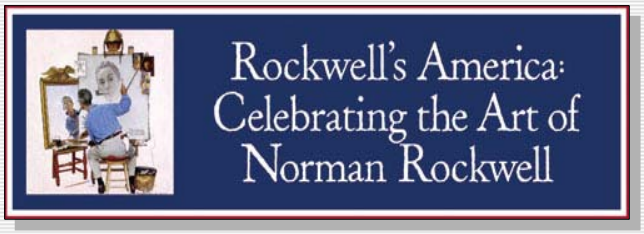


Dinner Registration

- Register on-line. Advance registration is required.
- Paper tickets will not be provided.
- Admission to the event will be verified with a registration list as you enter Discovery Place.

Discovery Place Highlights

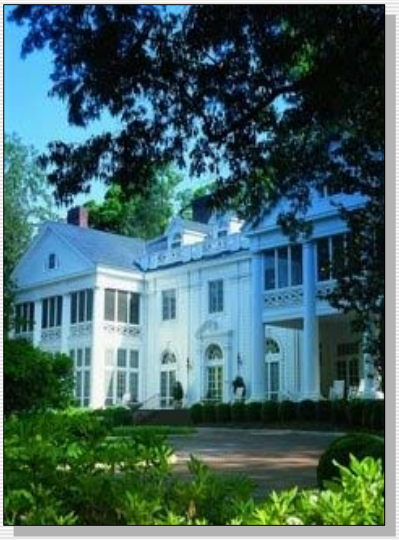
5:45 pm *- Buses begin departure from the front of The Westin*
6:15 pm *- Last bus departs for Discovery Place*
8:00 pm *- Dinner is served*
9:30 pm *- Buses begin departure for return to The Westin*



Discovery Place is Charlotte's premiere science and technology museum. Guests are always captivated by the exciting hands-on exhibits at this huge educational center. In March, the featured exhibit will be "Rockwell's America". This exhibit contains:

- Over 100 original covers from The Saturday Evening Post
- Original Norman Rockwell art
- Segments from the Academy Award winning film "Norman Rockwell's World"
- 20 theatrical environments. *Be sure to bring your cameras!*
- 35 three-dimensional life-sized depictions of Rockwell's most beloved characters
- Dozens of interactive experiences that depict changing times and technologies in America. *Enjoy becoming a part of the scenes!*

COMPANION TOUR
Monday, March 17, 2008



Our first touring day will consist of a tour & lunch at the **Duke Mansion**, which includes a bus tour of historical Charlotte.

9:15 am *- Bus departs for* ***Duke Mansion***
12:00 Noon *- Group Lunch at Mansion*
2:30 pm *- Board bus for continued tour of Charlotte's historical areas.*
4:00 pm *- Arrives back at The Westin*

Duke Mansion Highlights

- Tour of the **Duke Mansion** with a luncheon in the historic dining hall. Enjoy the childhood home of Doris Duke and her father, James Buchanan "Buck" Duke, founder of Duke Power/Duke Energy, American Tobacco Company, and benefactor to Duke University.
- Built in 1915 and tripled in size by its most famous owner James Buchanan Duke, The **Duke Mansion** has been home and host to leaders of the 20th century. Duke's most lasting legacies, including Duke University, Duke Energy, and the Duke Endowment, took shape at the home. Listed on the National Register of Historic Places, the Mansion is now operated as a nonprofit with all proceeds being used to preserve and protect this community treasure.
- After lunch at the **Duke Mansion**, the group will continue with a bus tour of Charlotte's historical areas.

COMPANION TOUR
Tuesday, March 18, 2008

Our second touring day will consist of a bus trip to **SouthPark Mall**, Charlotte's luxury shopping destination with an optional tour of the **Mint Museum of Craft + Design** following your time at the mall.

9:15 am *- Bus departs for* ***SouthPark***
Lunch *- On your own at one of the mall's fine restaurants (Cost not included in fee).*
2:15 pm *- Bus departs for uptown*
3:00 pm - 4:15 *Optional stop at Museum*
3:15 *- First return to The Westin*
4:30 pm *- Final return to The Westin*

(An "early" Westin drop-off is available for any who choose to not participate in the visit to the Museum.)

SouthPark Mall Highlights

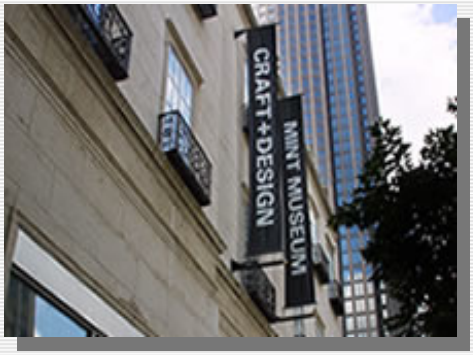
As the Carolinas' premier shopping destination, **SouthPark** offers an experience like no other. **SouthPark** is home to one of two Nordstroms in the Carolinas, and is now home to the first Neiman Marcus in the region and the first full-line Crate & Barrel store! BCBG Max Azria, Billy Reid, Hermes, Juicy Couture and Ralph Lauren are now open in the Neiman Marcus wing.

The mall is over 1.5 million square feet and has some of the nations trendiest restaurants - The Cheesecake Factory, Maggiano's Little Italy, Morton's Steakhouse, and McCormick & Schmick's. Avid shoppers can also rest and relax in the food court and enjoy an inexpensive lunch from a variety of offerings.

SouthPark offers several other exclusive stores, including Apple, Bob Ellis Shoes, Burberry, Cole Haan, Frontgate, Kate Spade, Janie and Jack, Kenneth Cole, Lacoste, Lindt Chocolate, Louis Vuitton, MontBlanc, Sigrid Olsen, St. John, Sur La Table, Tiffany & Co., Tommy Bahama, and Tumi.

COMPANION TOUR (continued)
Tuesday Afternoon
March 18, 2008

Mint Museum of Craft + Design



After your visit to SouthPark, another opportunity is available for those who choose to continue. The bus will drop you off at the downtown **Mint Museum of Craft + Design** at **3:00 pm** and returns at **4:15 pm** to pick you up for your return to The Westin.

The **Mint Museum of Craft + Design** features a permanent collection that documents contemporary studio craft and its relationship to decorative arts and industrial design. The techniques and inspiration of artists throughout the world are showcased in collections of ceramics, fiber, glass, metal and wood. Since its inception in 1999, the **Mint Museum of Craft + Design** has earned international recognition for the exceptional quality, range and distinction of its growing collections.

Described as edgy, colorful, exciting, and energetic, this is a tour you don't want to miss.

Mint Museum of Craft + Design

220 North Tryon Street

IEEE/PES Transformers Committee
Spring 2008 Meeting
Charlotte, North Carolina

"Short-circuit Strength and Short-circuit Testing of Power and Distribution Transformers"

-- Technical Presentation --
Monday, March 17, 4:45-6:00 pm

by Marcel Fortin, Juergen Gerth, Richard McLaughlin, and Pierre Riffon

1. Abstract

Transformer failures caused by short-circuit events are relatively rare events, but such failures may result in a catastrophic transformer failure, and/or in a major power outage and associated lost of revenues. According to IEEE and IEC standards, transformers shall be designed to withstand the electromagnetic forces and the thermal stresses produced during the flow of a short-circuit current. Such ability to withstand a short-circuit can be demonstrated by short-circuit tests or may be demonstrated by calculations as described in IEEE C57.12.00, IEEE C57.12.90 and IEC 60076-5. The need of requesting a short-circuit test should be based on a technical evaluation of the proposed design and on an economical evaluation of the risk associated with the possible lost of a transformer following a short-circuit event. This tutorial will provide some of the economical and technical aspects to be considered.

Small transformers, particularly those having non-circular coils and or having low X/R, and other special construction transformers as axial-split coil transformers may have particular behavior and/or need particular testing method. Those covered in the proposed revision of C57.12.90 will be presented and explained. Different test methods may be used such as the pre-set and the post-set methods. Both methods will be described and explained and the pros and cons of each method will be identified. Experiences gained in the past years show that the diagnostic methods used during a short-circuit test series as outlined in the standards are sometimes not sufficient to prove that the transformer has survived the test series without internal damages. New diagnostic tools have been developed and will be described.

Finally, recent surveys within high-power test laboratories show that the percentage of transformer designs which survive the test on the first trial is quite low for large power transformers. In addition, a CIGRE worldwide survey regarding transformer short-circuit failures in service show that the occurrence of a short-circuit failures is quite low, while a recent study at Hydro-Quebec showed that transformer failure rate due to short-circuit events is significantly higher than reported by the survey.

2. Learning Objectives

The tutorial will provide:

- Status regarding documents C57.12.00, C57.12.90;
- How transformers are designed to withstand short-circuit stresses;
- Conceptual understanding of the parameters involved in a short-circuit test program;
- Adequacy of calculations vs. performing a test;
- Importance of demonstrating the ability of a transformer to withstand a short-circuit for strategic locations or applications;
- Description of new diagnostic tools.

3. Learning Outcomes

As a result of attending of this tutorial session members will gain:

- An understanding that transformer short-circuit related failures are more frequent than reported;
- An outline of technical and economical parameters to be analyzed when the demonstration of the ability of the transformer to withstand the short-circuit current is considered;
- Inputs regarding test methodology and diagnostic techniques.

4. Presenter's Biographies

Marcel Fortin: Mr. Fortin received his B.Sc.A. in Electrical Engineering from Université Laval, Québec City in 1972, after which he joined Hydro-Québec were he occupied different function in Distribution Planning and Operation, in R&D, and in Health and Safety and as a test engineer at IREQ High-Power Laboratory. He retired from Hydro-Québec in 2001. Since then he acts as consultant in power apparatus and high-voltage and high-power testing.

Marcel is a member of the IEEE Transformers Committee and Switchgear Committee on which he is participating in several subcommittees and working groups and his responsible of working groups and task Forces. Marcel chairs the task force on the revision of short-circuit testing requirements (Clause 12 of C57.12.90). Marcel is a member of IEEE Power Engineering Society and registered as a Professional Engineer in the Province of Québec.

Juergen Gerth: Mr. Gerth is Technical Manager of ABB Inc. Power Transformer Division at Varennes, Quebec, Canada. Previously he was technical manager of ABB Power Transformer plant in Bad Honnef, Germany. He received his diploma degree in 1968 at the Technical University Aachen, Germany in Power Engineering. He joined Brown Boveri & Cie, Mannheim, Germany in the same year and started his carrier as an electrical designer of large power transformers. Responsibilities as an Electrical Design Manager, R&D Manager, and Technical Manager followed.

After the merger of ASEA and Brown Boveri to ABB, Juergen took a major role in the development of the Common ABB Power Transformer Technology. In 2003 he joined ABB Varennes to support this organization to deliver transformers with large power and very high voltages for the North American market.

Richard P. McLaughlin: Mr. McLaughlin received his B. Sc. in Electrical Engineering from Drexel University in Philadelphia in 1994 after which he joined KEMA Powertest, Inc. where he started as a test technician performing different functions in the test operations department of the test laboratory. Since 1996 he is working at the tasks and responsibilities of a Supervising Test Engineer in planning, guiding, implementing, executing and reporting all facets of a wide variety of test programs.

Richard is a member of IEEE Power Engineering Society.

Pierre Riffon: Mr. Riffon received his B.Sc.A. in electrical engineering from École Polytechnique de Montréal in 1980 after which he joined Hydro-Québec's Research Institute (IREQ) as a Test Engineer for the High Power Laboratory. Since 1988, he is working as a Test Specialist for the Hydro-Québec's Quality Control Department and is responsible for type tests on high voltage substation equipment and special project apparatus (static and series compensation, HVDC Converter, etc.).

Pierre is a member of the Transformers Committee on which he is participating in several Subcommittees and Working Groups. In particular, he is Co-chairman of WG on Test Requirements for Instrument Transformers for Nominal Voltage 115 kV and above, and the Chairman of the WG on Revision to the Impulse Tests Section in C57.12.90. He is also the Chairman of the Canadian IEC Technical Committee TC17 and Subcommittees SC17A and SC17C, Switchgear and Controlgear. Mr. Riffon is also the convener of a WG on High-Voltage alternating current by-pass switches and the Canadian representative on SC17A/MT36 for the revision of IEC 62271-100 High Voltage Circuit Breakers. Pierre is a member of IEEE Power Engineering Society and a registered Professional Engineer in the Province of Québec.

IEEE/PES Transformers Committee
Spring 2008 Meeting
Charlotte, North Carolina

"US National Energy Policy"

-- Technical Presentation --
Tuesday, March 18, 4:45-6:00 pm

by Phil Hopkinson and Nigel McQuin

1. Abstract

The United States has wrestled with an Energy Policy for several decades and has had difficulty agreeing on comprehensive and coherent objectives. The 2001 "Bush-Cheney Report" focused heavily on the need for new energy supplies and the infrastructure, with hints at the need for energy efficiency. Energy self-sufficiency was a dream but rising energy prices were a reality. The policy report laid out proposed actions to boost supplies, stabilize markets, and address future growth. This presentation looks closely at the plan and current state to better understand how important the recommendations remain today.

During this presentation, it is hoped that the audience will be able to influence others of the importance of this message and to quickly push for adoption of the principals in the 2001 plan. We will review our current energy consumption and understand how it is supplied. We will also review the Department of Energy's forecast for future energy needs and understand options that may be able to meet them. Also presented will be the Energy Policy Statement published by the IEEE Power Engineering Society in the spring of 2007 which compliments the National Report. You will also be presented with environmental issues and have a chance to consider some of the issues about the Global Climate Change debate.

2. Learning Objectives

The tutorial will provide:

- Overview of National Energy Policy Report of 2001.
- The relevance of the Energy Policy Act of 2007 on automotive fuel economy.
- Understanding of the US energy picture; demand, supplies and growth projections.
- View of options to rid the country of the need for foreign oil.
- Examination of the importance for electricity and the need for rapid expansion.
- Options and economic factors for new electric generation.
- Close look at the environment and recognition that a balanced plan is necessary.
- Call for action to proceed towards Energy Independence!
- Chronology of climate change research.
- The development of climate change legislation/taxation burden.

3. Learning Outcomes

As a result of attending of this tutorial session members will gain:

- An understanding of the relevance of the 2001 Energy Policy Report and of the 2007 Energy Policy Act on automotive fuel economy.
- A clear picture of what it means to become Energy Independent.
- A view of the enormity of new generation that must be built quickly in the United States.
- Realization that we cannot shut down our viable generation capacity in spite of impacts on greenhouse gases.
- A clearer picture of Global Climate Change.

4. Presenter's Biographies

Nigel McQuin: Mr. McQuin gained a First Class Honors Degree in Electrical Engineering from Imperial College, London, England in 1977, specializing in electrical power systems and rotating machinery. He also holds minor qualifications in geology and paleontology. He joined GEC Large Machines Co. (later Alstom, now Converteam Inc.) as a Development Engineer, where he worked on the design and analysis of a wide variety of electrical machines and drive systems. He later joined Brush Electrical Machines Co., then as development manager.

In June 1990, Nigel moved to the USA, where he became Vice President and Test Laboratory Manager at PSM High Power Test Laboratory in East Pittsburgh, PA. Since December 1996, he has been self-employed as an independent Electrical Power Consultant, covering diverse projects in high-power electrical testing, design reviews, forensic expert witness services, and electric vehicle drive designs. One testimony to his drive motor skills is the land-speed-record electric cars that have achieved over 300 mph on the Bonneville Speedway on the Utah Salt Flats.

Nigel has been chairman of STLNA (Short-Circuit Testing Liaison - North America), a coordinating body for the high power electrical test laboratories within NAFTA. He also serves on the IEEE standards committees for Switchgear (C37), Transformers (C57), Surge Protection Devices (C62), Electrical Machinery (C50) and High Voltage Testing Techniques (PSIM). He has been a technical liaison contributor to the US National Committee for IEC TC17A/C (switchgear) and TC14 (transformers), and has served in previous years with TC42 (HV testing techniques) and TC37 (surge protection devices). He is an Individual Member of CIGRE (Paris), and is also a Member of the IET (London). Locally he contributes to the IEEE Pittsburgh Chapter by providing technical presentations each year, and was awarded the IEEE-PES 2006 Outstanding Engineer Award.

Phil Hopkinson: Mr. Hopkinson is a long service Transformer Engineer and his career path includes managerial and engineering assignments at General Electric, Cooper Power Systems and Square D/Schneider Electric in distribution, medium power and large power transformers of liquid, dry and cast resin constructions of all voltage classes.

In 2001, Phil formed a power transformer consulting company, called HVOLT Inc. and since 2002 has managed HVOLT full time. He currently holds 15 US patents, is a Registered Professional Engineer in North Carolina, and is Technical Advisor (TA) to the US National Committee for IEC TC14 for Power Transformers. He has authored IEEE Transactions papers on the effects of DBPC in Transformer Oil, on Low Voltage surge phenomena in Distribution Transformer windings, and a panel session on Natural Ester Fluids at the 2006 IEEE Transmission and Distribution Meeting and has Chaired NEMA's activities and was primary author of NEMA TP-1 Guide for Energy Efficiency for Distribution Transformers. He has conducted seminars on Circuit Breaker Switching and Transformer Interaction at the IEEE Transformers Committee in 2003 and at the Doble International Conference in 2006 and at the IEEE Transformers Committee in 2007. He has chaired numerous IEEE and NEMA Working Groups and from 2001-2006 has served as Chairman of IEEE's Policy Development Coordinating Committee from 2001-2004 and continues on the executive board where the PES Energy Policy was written and approved by the Board of Governors in 2007. Energy Policy and Environmental impacts have been a 30-year curiosity of Phil's and he continues to immerse himself in issues at all levels.

Phil received his BS from Worcester Polytechnic Institute in 1966. He is a C-Course graduate of GE's Advanced Engineering Program and received his MS degree in System Science from Brooklyn Polytechnic institute in 1970, where his Masters Thesis was on Impulse Voltage Distribution in transformer windings.