

ICCN Newsletter

From the ICC Chair

The ICC will hold its 137th meeting

April 11-15 with

380-450 expected in attendance. Over the years, we have refined our meeting

format to provide what attendees now perceive as a highly organized, well run meeting. However, you may not realize that those making the ICC function so efficiently are primarily volunteers who devote considerable time to ensuring the sessions you attend are both interesting and informative.

As part of IEEE, the ICC enjoys many benefits of being connected with this organization. In the early days, we operated virtually autonomously, but changes in regulatory and legal requirements, and tax laws, now require us to comply with IEEE policies and procedures. The ICC's governing body consists of an Executive Committee (ExCom) and an Administrative Committee (AdCom) that are made up of 26 volunteers, including ICC Officers and Chairs and Vice-chairs of subcommittees. Throughout the year, these two groups work to ensure that ICC fulfills its obligations and continues to function smoothly.

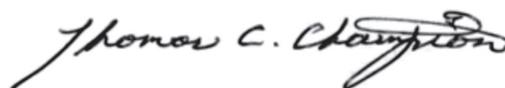
Some key positions within ICC have had no backup. To correct this situation,



several new positions were created at the last AdCom meeting. If you are interested in getting involved, please consider volunteering for one of the following positions that offer a rewarding opportunity to both learn about the inner workings of the ICC and advance within the organization:

- Assistant Membership Secretary— Assist in registration process and NetSuite entry
- Assistant Recording Secretary— Assist in preparation of ICC minutes
- ICC Photographer— Document ICC activities and award recipients for newsletter
- Assistant Webmaster— Assist in maintenance of ICC web site, defining web site content and programming
- Awards Vice-chair— Assist Awards Chair in identifying nominees and updating web site
- Assistant Standards Coordinator— Assist in maintenance of standards & PAR process.

Have a safe trip to Clearwater Beach. I look forward to seeing you at the premier industry event on insulated cables and associated technologies.



Thomas C. Champion
NEETRAC—A Center of Georgia Tech
IEEE PES ICC 2014 and 2015 Chair



Spring 2015 Education Session

By Pete Tirinzoni, Eversource & Rachel Mosier, PE, Power Delivery Consultants, Inc., ICC Chair & Vice Chair—Education Session

At the request of the attendees, the next education session will focus on The Design Life of Medium Voltage Cables. This exciting session will discuss the magic of the widely accepted 40-year life of medium-voltage cables. Is it truly based on the typical career length of an underground cable engineer, knowing he or she will retire before having to answer any questions about one of their installations?

Plan to attend this education session at our upcoming ICC Spring Meeting at the **Hilton in Clearwater Beach, Florida on Wednesday, April 15 from 1:00 – 5:00 pm**. You'll hear from well-known cable industry experts as they discuss the development of our modern, state-of-the-art medium-voltage cables, and we will learn about the testing that has gone into these cable systems, allowing us all to rest easy at night knowing the lights will still be on in the morning.

The High Voltage Extension Cord Solution

By Don Koonce, Principal Engineer, Dominion Virginia Power

Dominion Virginia Power's high voltage extension cord solution provides an innovative, yet simple way to mitigate what can be complex transmission construction issues. This solution involves the use of temporary cables to bypass sections of existing transmission lines and substation buses to enable replacement of components. The temporary connections are made while the existing facilities are energized, allowing Dominion Virginia Power to provide uninterrupted service.

Before the advent of this solution, the bypassing of existing lines and equipment required the construction of temporary overhead facilities. This often meant acquiring easements in areas where Dominion Virginia Power did not necessarily have right-of-ways to perform such work. In some instances, there was simply not enough room around existing facilities to construct temporary overhead lines.

The high voltage extension cord solution requires much less space to install. The temporary cables can be deployed for a few days or a few months, depending on the project. This reduces the number of times that Dominion Virginia Power has to deploy a mobile transformer, freeing up that equipment for emergency use. Upon completion of a project, the cables are simply wound back onto large reels and moved to the next project. No materials are scrapped with this solution. In fact, the original set of cables was used more than fifty times before retirement.



Temporary cables enable bypassing sections of substation buses for maintenance.

Due to the cost savings, the high voltage extension cord solution has become normal practice. Dominion now has a fleet of seven temporary cable sets for projects requiring temporary work. Transmission voltage class cables are generally custom designed for specific applications.

By adapting off-the-shelf, readily available 69 kV products that are subsequently energized at 115 kV, much of the expense and lead time is reduced significantly.

Safety has been paramount throughout the development and implementation of this approach to transmission work. Specific safety procedures, including a check list for the field crews and system operations, and detailed procedures for energizing the cables using live-line techniques have been developed.



Temporary cables are wound onto large reels and moved from project to project.

ICC AWARDS

By Lauri Hiivala, ICC Awards Chair

At each ICC meeting, certificates of appreciation (COAs) are presented to all outgoing subcommittee, working group and discussion group chairs and vice chairs, or upon publication of their standard or guide. They were also presented for best presentation at a subcommittee meeting or educational program as follows for Spring 2014:

- Carlos Katz and Rachel Mosier, Subcommittee A Meeting, *Evaluation of Further Serviceability of 60 Year Old 138 kV LPOF Cable*
- Deniz Turkben and Jody Levine, Subcommittee C Meeting, *An Asset Management Strategy for Hydro One's Ageing Transmission Cable Fleet*
- Bill Taylor and Doug DePriest, Subcommittee D Meeting, *Underwater Testing of Splices and Connectors*

Michael Mueller, Vice-Chair of Subcommittee C Cable Systems, received the **2014 PES Technical Council Young Professionals Award** that recognizes the contributions of PES young professionals who received their first professional degree within the last ten years.

Joe Zimnoch received the **2014 Technical Committee Distinguished Service Award** that acknowledges the efforts of an individual whose sustained performance, over many years, has contributed to the advancement of a committee technology. He was awarded for his leadership in developing, implementing and providing guidance and education to the utility industry for high-voltage pipe-type cable systems, and for the widespread implementation of laminated paper polypropylene insulation.

Cable Asset Management Program Challenges Faced by Utilities

By Mark Walton, Subcommittee A Chair

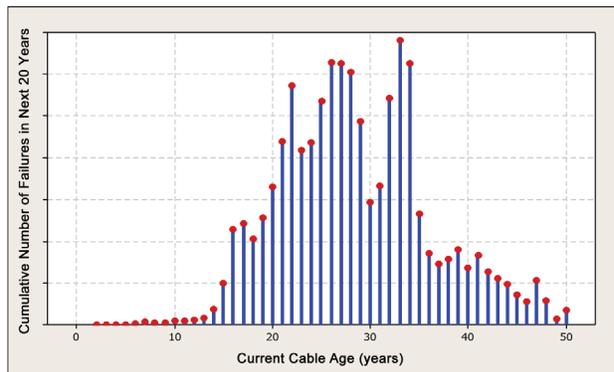
At the fall 2014 Subcommittee A meeting, Nigel Hampton and Joshua Perkel presented, Decision Making and Forecasting Using “Real” Utility Data – Pitfalls, Challenges and a Way Forward. Awarded best presentation, the topic is particularly timely for utility employees involved in managing operations and maintenance resources related to cable.

The authors point out that prediction of future resource requirements for cable systems often depend on “base case” models developed from historical installation and failure records. Unfortunately, these are often limited, incomplete or inconsistent, or they rely on “rule of thumb” approaches. The uncertainties within these base cases complicate estimating the value of future intervention strategies. While diagnostic tests can provide a snapshot of current conditions, they must be repeated to establish future trends and aging dynamics. Diagnostic testing is also inherently

sampling based, which assumes the cable system segments selected for testing are representative of the cable fleet.

In light of these shortcomings, the authors make a strong argument for new, smarter approaches to evaluating historical utility installation and failure records. When the standard analysis techniques are augmented by enhanced attention to current failures and cleaning of data mined from the recent past, it offers useful information for effective management of operations and maintenance resources.

This presentation, as well as the other Subcommittee A presentations, will be published in the ICC minutes.



CIGRE UPDATE

By Pierre Argaut, Chair of CIGRE SC B1

Technical Brochure 605, *Feasibility of a Common, Dry Type Interface for GIS and Power Cables of 52 kV and Above*, and 606, *Upgrading and Upgrading of Existing Cable Systems*, are now available for free download by CIGRE members at www.cigre.org.

Reports from WG B1.40, *Offshore Generation Cable Connections*, and B1.42, *Testing of Transition Joints between HVDC Cables with Lapped and Extruded Insulation up to 500 kV*, will be available in the next couple of months. Reports from B1.28, *On-site Partial Discharge Assessment of HV and EHV Cable Systems*, B1.43, *Recommendations for Mechanical Testing of Submarine Cables*, and B1.35, *Guide for Rating Calculations of HV Cables* will likely be available before the ICC Fall meeting. The following Terms of Reference (TOR) have also been approved by the CIGRE Technical Committee:

- WG B1.50, *SVL and Bonding Systems*, Tiebin Zhao, United States
- WG B1.51, *Fire Issues for Cable Installed in Air*, Paolo Maioli, Italy
- WG B1.52, *Fault Location on Land and Submarine Links (AC and DC)*, Robert Donaghy, Ireland

In addition, SC B1 decided to launch a preparatory task force (TF)—TF B1.54, *Behavior of Cable Systems under Large Disturbances (Earthquakes, Storms, Floods, Fires, Landslides and Climate Change)*, Harry Orton, Canada. The TF will determine if a full WG is needed to address this topic.

Calendar of International Events

2015

Compiled by Wim Boone and Harry Orton

Cigré HVDC Systems & Market Integration Symposium

May 27-28, Lund, Sweden
www.cigre2015.se

5th International Workshop on Insulated Cables

June 1-3, São Paulo, Brazil
www.rpmbrasil.com.br/eventos.aspx

CIREC 2015 – 23rd International Conference and Exhibition on Electricity Distribution

June 15-18, Lyon, France
www.cired2015.org

Jicable'15 – 9th International Conference on Insulated Power Cables

June 21-25, Versailles, France
www.jicable.org

The 11th International Conference on the Properties and Applications of Dielectric Materials (ICPADM)

July 19-22, Sydney, Australia
www.icpdm2015.org

IEEE PES General Meeting

July 26-30, Denver, Colorado
www.pes-gm.org/2015

Cigré Study Committee D1 Colloquium on Trends in Electrical Power Systems

September 13-18, Rio de Janeiro, Brazil
www.scd1rio2015.org.br

The IET International Conference on Resilience of Transmission and Distribution Networks

September 22-24, Birmingham, UK
www.theiet.org/RTDN

ICC Newsletter Team

Harry Orton, ICC Communications Chair
Wim Boone, ICC Advisory Committee Chair
Ram Ramachandran, AC Task Force Chair

Gabriel Taylor Named NRC Engineer of the Year

By Kent Brown, Senior Technical Advisor,
TVA Nuclear Power Group

ICC's own Gabe Taylor was recently recognized as the **Nuclear Regulatory Commission (NRC) Engineer of the Year**. Gabe is a senior engineer in NRC's Fire Research Branch and has been active in ICC for several years. He currently serves as Chair of WG D19 *IEEE P1844, Standard for Testing Fire Resistive Cables for Use in Nuclear Facilities*, and Vice Chair of WG D15 *IEEE P1202, Vertical Tray Flame Test Protocol*. A registered PE in Maryland, Gabe completed his BSEE at Penn State in 2004 and received his MS in Fire Protection Engineering from the University of Maryland in 2012.

Gabe made significant contributions to the industry by advancing knowledge of fire-induced failure modes and effects on safety-related electrical systems. He designed and led a series of programs that identified a new failure mode where grounded electrical raceway systems aid the development and likelihood of inter-cable faults. This "ground fault equivalent" failure mode is now being incorporated into regulatory guidance to support the safety mission of the agency. Gabe then led an expert panel that examined the current regulatory deterministic and performance-based



Gabriel Taylor, 2014 NRC Engineer of the Year

fire protection approaches, resulting in recommendations that ultimately improved how a fire-induced circuit failure mode analysis is conducted. To ensure proper implementation, Gabe teaches a fire probabilistic risk assessment (PRA) circuit analysis course to NRC inspectors and industry members.

As NRC Engineer of the Year, Gabe became a candidate for the Federal Engineer of the Year Award among candidates from 24 other federal agencies. He recently joined the other candidates for the announcement of the Federal Engineer of the Year at a ceremony in Washington, DC.

ICC STANDARDS CORNER

By John Merando, Bechtel Power Corporation,
ICC Standards Coordinator

Congratulations to Vice Chair Robert Uddin and WG C29W for the recent IEEE-SA Standards Board approval of Corrigendum 1 to IEEE 1727-2013, *Guide for Working Procedures on Underground Transmission Circuits with Induced Voltage*. Also congratulations to Chair Ajit Gwal and WG D13W for approval of IEEE 848, *Standard Procedure for the Determination of the Ampacity Derating Factor for Fire-Protected Cable Systems*.

This winter has been the snowiest on record, hopefully allowing plenty of time indoors to update and revise IEEE guides and standards that are due for renewal. Currently 17 out of the 58 documents that ICC sponsors must be updated by the end of 2018 to avoid being withdrawn, including IEEE 532, 1210, 1407, 592, C62.22.1 (aka 1299), 1493, 386, 495, 1610, 1216, 1425, 1406, 1234, 442, 400.1, 400.3 and 1617. Each has a technical and financial impact on our economy, our environment and our society.

We are grateful to the dedicated engineers, technicians, marketing and sales force members that volunteer their efforts to write, revise and maintain these documents, and to corporations that support these activities. We encourage your continued participation.

Upcoming ICC Events

April 12-15, 2015 Spring ICC – Clearwater Beach, Florida

For a full list of all Spring ICC presentations and activities, or to register for the meeting and Transnational Lunch, please visit the website at www.pesicc.org.

November 1-4, 2015..... Fall ICC – Tucson, Arizona

Please return frequently to the www.pesicc.com website for updates on presentations, event registration, and other meeting information.

TELL US WHAT YOU THINK! ICC welcomes your feedback.

If you'd like to suggest topics for upcoming issues of the ICC Newsletter, or add a colleague to our email database, please contact Harry Orton at h.orton.1966@ieee.org