

# ICC Newsletter

## From the ICC Chair



Henk Geene

Almost two years have passed since we had our last onsite ICC meeting. Our Spring 2021 meeting was held in the form of an electronic session. We had 177 people attending the e-session, which showed that many of

us like to stay in touch with the ICC, even if we can't meet in person.

As we can follow in the news, COVID is not concluded yet and it looks like we have to deal with the virus, its variants and its restrictions for the coming years.

Personally, I feel that we should do this in a sensible way, following carefully all the instructions of the experts and authorities, but not letting our lives come to a complete

standstill. For this reason, we had the intention to move forward with preparation of the on-site ICC Fall 2021 meeting. Unfortunately, the Delta variant of the COVID virus has forced us again to change our plans and move to an online meeting instead. Apart from concerns about the health and safety of all the participants, the outcome of a member survey and the travel bans imposed by several companies led to the decision. Organizing a meeting with less than half of the normal participation would make it difficult for working groups to have at least one officer (chair or vice chair) available and to obtain a quorum for making any developments and taking decisions when needed.

Despite the COVID situation, the cable business continued and is still standing strong. The current situation even has put more pressure on the introduction of renewable energy sources, requiring the reinforcement and extension of the trans-

mission network. The need for good standards is indispensable and the continuation of our work at ICC more important than ever.

The Fall 2021 meeting will be my last as chair of ICC. I have to admit that I had pictured my term as chair differently from how it turned out to be, with four meetings cancelled. Virtual (online) meetings offered a solution, but can't match the value of meeting face to face.

A big comfort to me is that we have two great successors, Yingli Wen as upcoming chair and Bert Spear as upcoming vice chair. With this very strong team, supported by ExCom, AdCom and our active participants, I'm sure that we have secured a successful continuation of ICC for many years to come. Stay safe and hope to see you soon.



Henk Geene

## ICC Standards Corner *By Kathryn Klement, ICC Assistant Standards Coordinator*

At IEEE, the development of new standards and the revision of existing standards always begins with a Project Authorization Request (PAR). PARs need to be approved by the IEEE Standards Association New Standards Committee (NesCom) and are then valid for up to four years before an extension is needed.

ICC's Working Groups (WGs) have been busy with 36 approved PARs spread out among the ICC Subcommittees. Six PARs for the revision of standards were approved since the last in-person ICC meeting in Fall 2019:

- P1300 – WG B05W, chaired by Frank Frentzas, *Guide for Cable Connections for Gas-Insulated Substations*

- P1493 – WG B09W, chaired by Tom Fredericks, *Guide for Evaluation of Solvents Used for Cleaning Electrical Cables and Accessories*
- P1511 – WG B12W, chaired by Kraig Bader, *Guide for Investigating and Analyzing Power Cable, Joint, and Termination Failures on Systems Rated 2.5kV through 46kV*
- P1511.1 – WG B12W, chaired by Kraig Bader, *Guide for Investigating and Analyzing Shielded Power Cable Failures on Systems Rated 5 kV Through 46 kV*
- P1215 – WG B18W, chaired by Stanley Szyzsko, *Guide for the Application of Separable Insulated Connectors*

- P82 – WG C14W, chaired by Rachel Mosier, *Standard Test Procedure for Impulse Voltage Tests on Insulated Conductors and Their Accessories*

Thanks to all the active WG members for your continued time and dedication to standards development. To get involved, you can attend any of the WG meetings at the next ICC or reach out to the subcommittee chair for more information.

### ICC Newsletter Team

Rachel Mosier, ICC Communications Chair  
Harry Orton, Associate Editor  
Yingli Wen, Associate Editor

# Update of IEEE Distribution Standards 1637, 48 and 404

By Bill Taylor

IEEE-48, *IEEE Standard for Test Procedures and Requirements for Alternating-Current Cable Terminations Used on Shielded Cables Having Laminated Insulation Rated 2.5 kV through 765 kV or Extruded Insulation Rated 2.5 kV through 500 kV*, and IEEE-1637, *IEEE Guide for Selection and Application of Terminations for Shielded Alternating-Current Power Cable Rated 5 kV – 46 kV*, have recently been revised. Meanwhile, a combined standard is being created.

IEEE-1637 was upgraded from just a selection guide to a selection and application guide. It still contains an educational section on electrical stress control and all of the items to consider when selecting the proper termination, but a lot of application information has been added. The guide now includes a termination spacing guide section, which shows phase-to-ground and phase-to-phase separation requirements at the different voltage levels and how to deal with same phase terminations that are different lengths.

The section on lugs and connectors and mounting of the terminations has been expanded and now includes information on mechanical stresses and stresses from faults and how to address them. A description of all the available types

of terminations is included, as is a description of the different materials used to make terminations.

Pictures of the different types of terminations have been added along with a description of when and where to use inverted terminations. The section on choosing the right termination for contaminated areas and when to upgrade to a higher voltage rated termination has been added to this guide and removed from IEEE-48.

This section defines different levels of contamination and makes recommendations on the terminations needed for long life and excellent performance for each level of contaminates. The guide also addresses installations at high elevations above sea level where air is less dense and therefore not as good an electrical insulator. A de-rating chart is provided, since live front terminations rely on air as part of their insulation.

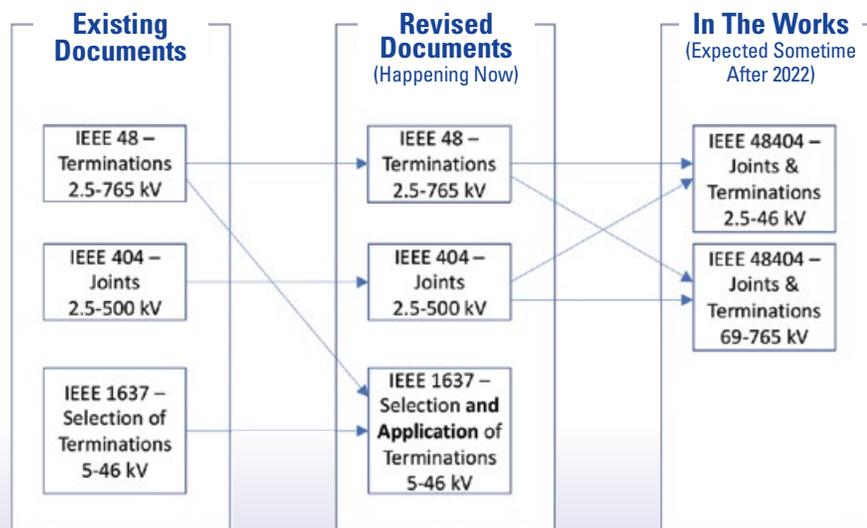
Discoloration of terminations is also addressed, along with a discussion of the hydrophobic properties of termination materials versus hydrophilic properties. This is discussed in great detail in an Annex.

Also covered are cleaning and maintenance of terminations, shelf life and storage requirements and cable training and support required. Finally, the guide provides drawings on correctly connecting the shields on terminations when current transformers are present.

Revisions to IEEE-48 include moving the application section to IEEE-1637; however, it was revised mainly so it didn't expire before the new combination standards could be finished.

The same is true for IEEE-404, *IEEE Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2.5 kV to 500 kV*, which is also in the revision process. There will be a new standard, IEEE-48404, that covers both joints and terminations, one for voltages 2.5 – 46 kV and one for voltages 69 – 765 kV. This split will provide better standards for both voltage classes, as each group can now focus on their area of expertise.

IEEE-404 is good until 2022, but the new combination standards won't be finished by then; it will be balloted as is and renewed by the end of 2022 so the new standards can be completed without having to rush the process and so that all aspects can be properly addressed.



# AEIC Cable Engineering Committee Work Continues Through the Pandemic

By Najwa Abouhassan, Chair,  
AEIC Cable Engineering Committee

During the pandemic, the Cable Engineering Committee (CEC) of AEIC continued to meet in Spring and Fall 2020, and plans are underway for a virtual meeting with a full agenda for the upcoming 2021 Fall meeting. This shift in the approach to the committee meetings was vital in making progress on specifications and guides during the pandemic. The adaptability of the committee allowed for the committee's mission and goals to move forward and increased collaboration throughout the membership.

The CEC allowed guests to join meetings and voted in three new members from Oncor Energy Delivery, DTE Energy, and San Diego Gas and Electric. The CEC also had three members retire. Jon Erickson, principal engineer of San Diego Gas and Electric, was appointed in 1999 as an official member of the CEC committee. Jon had a deep interest in contributing to the CEC guides and specifications as he served in various task group roles. Jon's dedication to the CEC was evident when he served as Chair of the CEC from 2012-2014. George Valdez also retired from the committee after serving since 1987. He was involved in many distribution specifications and guides where he held various positions on the different task groups. Most recently, John Owen, discipline engineer for Underground Transmission Engineering of Oncor Energy Delivery, announced his retirement. John joined CEC in 2016, and during that time, he was appointed as the Transmission director, where he worked directly with task group chairs on specification and guide updates. John's sincere commitment to the cable industry was demonstrated during his time with CEC as he was involved in both the tactical and strategic objectives of the committee.

The committee also held its first webinar, where task group members reviewed the changes of one of our most-referenced specifications, *CS8 Specification for Extruded Dielectric, Shielded Power Cables Rated 5-46kV*. The webinar was well attended, and an increased engagement was observed with users of the specification and the committee members. The committee plans to hold future webinars as new guides and specifications are published to keep users engaged and informed around AEIC specifications and guides. The CEC also launched their new LinkedIn page to create an avenue to share committee updates, events and connect with the users of our specifications and guides.

# New Policies and Procedures for Working Groups – Part I

By Lauri Hiivala (retired)

Abraham Lincoln once said, "I never had a policy; I have just tried to do my very best each and every day."

In essence, that was Lincoln's policy. But as in all modern societies, policies and procedures must come with a set of expectations. They guide us to operate in a consistent way.

Standards Committees are expected to ensure that their Working Groups (WG) have Policies and Procedures which must conform to the IEEE SA Standards Board approved baseline document. In accordance with this mandate, our new *Policies and Procedures for Working Groups of the IEEE Power and Energy Society (PES) Insulated Conductors Committee (ICC) Using the Individual Method* is posted on our website at <https://pesicc.org/ICCWP/2021/04/07/policies-and-procedures-for-working-groups/>.

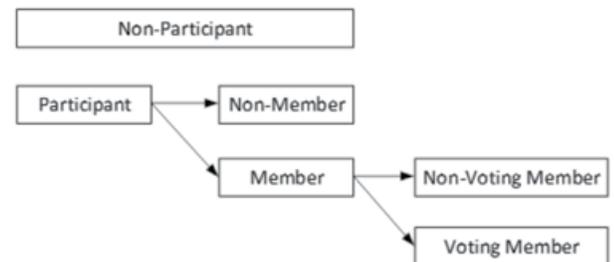
## Here are some of the more important changes regarding the organization of WGs:

Conduct - Membership privileges can be lost through persistent violation of the fundamental principles of operation or disregard of standards of conduct. A WG Chair that suspects persistent violation of these principles or standards by an individual shall refer the matter to the ICC Chair.

Definitions - A number of definitions have been added, including:

- A participant is an individual involved in the standards development process.
- A non-member is a participant who has not satisfied the criteria for membership.
- A member is a participant who has satisfied the criteria for membership.
- A non-voting member is a member who has satisfied the criteria for non-voting membership.
- A voting member is a member who has satisfied the criteria for voting membership.

The relationship between the terms *participant*, *non-member*, *member*, *non-voting member* and *voting member* is illustrated in the diagram (right):



A non-member becomes a non-voting member by attending one meeting, providing contact and affiliation information needed for the roster, and requesting membership from the Chair. A non-voting member becomes a voting member by attending two of the last four meetings and upon sending a request for voting status to the WG Chair prior to the next meeting. A non-voting member becomes a non-member by not attending any of the last four meetings. If a voting member misses two consecutive meetings, or two consecutive WG letter ballots, the voting member becomes a non-voting member. A voting member's obligation to respond to WG letter ballots (in which they are eligible to vote) is in addition to their obligation to attend WG meetings.

WG Responsibilities - Only those authorized to access and use IEEE's data from IEEE systems are permitted to do so, for the purposes intended, and only in compliance with IEEE or IEEE-SA data privacy policies.

*(Part II of this article will appear in the Spring 2022 issue of the newsletter)*

# ICEA Energy Cable Standards Updates By Jared Weitzel, ICEA 1st VP Energy Division

The Insulated Cable Engineers Association was established in 1925 for the development of insulated wire and cable standards. Currently the association is split into two divisions, Energy and Communications. For the past year and a half, the association has continued to meet virtually to keep our standards and guides up to date. And in spite of the less-than-ideal meeting conditions, the Energy Division was still able to complete the following extensive list of work:

## Recently published documents:

- ANSI/ICEA T-24-380 - Partial Discharge Test Procedure
- ANSI/NEMA WC51/ICEA P-54-440 - Ampacities of Cables Installed in Cable Trays
- ANSI/ICEA S-76-474 - Neutral-Supported Power Cable Assemblies with Weather-Resistant Extruded Insulation Rated 600 Volts
- ANSI/ICEA P-79-561 - Guide for Selecting Aerial Cable Messengers and Lashing Wires
- ANSI/ICEA S-81-570 - 600 Volt Rated Cables of Ruggedized Design for Direct Burial Installations as Single Conductors or Assemblies of Single Conductors
- ANSI/NEMA WC 53/ICEA T-27-581 - Standard Test Methods for Extruded Dielectric Power, Control, Instrumentation, and Portable Cables for Test
- ANSI/ICEA S-94-649 - Standard for Concentric Neutral Cables, Rated 5 Through 46 KV
- ANSI/NEMA WC 70/ICEA S-95-658 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
- ANSI/ICEA S-58-679 - Standard for Control, Instrumentation and Thermocouple Extension Conductor Identification
- ANSI/ICEA S-105-692 - Standard for 600 Volt Single Layer Thermoset Insulated Utility Underground Distribution Cables
- **\*NEW\*** ICEA P-124-736 - Code Words for 600 Volt Underground Distribution Cables
- **\*NEW\*** ICEA P-127-737 - Code Words for Overhead Aluminum Covered Conductors and 600 Volt Overhead Cables

## Documents under review or in the balloting process:

- ANSI/ICEA T-22-294 - Test Procedures for Extended Time-Testing of Wire and Cable Insulations for Service in Wet Locations
- ANSI/NEMA WC 54/ICEA T-26-465 - Guide for Frequency of Sampling Extruded Dielectric Power, Control, Instrumentation and Portable Cables for Test
- NEMA WC 57/ICEA S-73-532 - Standard for Control, Thermocouple Extension, and Instrumentation Cables
- ANSI/ICEA T-28-562 - Test Method for Measurement of Hot Creep of Polymeric Insulations
- NEMA WC 71/ICEA S-96-659 - Nonshielded Cables Rated 2001-5000 V for Use in the Distribution of Electric Energy
- ANSI/ICEA S-97-682 - Standard for Utility Shielded Power Cables Rated 5 Through 46 kV
- ANSI/ICEA S-113-684 - Performance Based Standard for Electric Utility Extruded Dielectric Shielded Power Cables Rated 5 Through 46 KV
- ANSI/ICEA S-121-733 - Standard for Tree Wire and Messenger Supported Spacer Cable
- ANSI/ICEA P-117-734 - Ampacities for Single-Conductor Dielectric Power Cables 15 kV Through 35 kV
- ANSI/NEMA WC 10100/ICEA S-129-755 - Standard for High-Temperature Instrumentation and Control Cables for the Transmission and Distribution of Low Voltage Electrical Energy

## The following working groups are developing new standards:

- WG 726 – Pellet Inspection Systems
- WG 750 – Wind Turbine Cables
- WG 738 – VFD Cables <= 2 kV
- WG 751 – MV DC Cables

**Additional information** about ICEA and its standards can be found at [www.ICEA.net](http://www.ICEA.net).

## International Events Calendar

*Compiled by Harry Orton*

The continuing world situation has made it very difficult to provide accurate conference listings and dates as some conferences have gone virtual while others have changed dates, relocated or have been cancelled. Please refer to the respective website for up-to-date conference information. Be very careful when searching the Internet for conferences and symposia as there are fraudulent websites advertising predatory conferences with very similar names. Their sole purpose is to collect papers and registration fees.

**AWEA (American Wind Energy Association)**  
13-15 October 2021, Boston MA, USA [AWEA.org](http://AWEA.org)

**Interwire**  
26-27 October 2021, Online Session [wirenet.org](http://wirenet.org)

**Jicable HVDC'21**  
8-10 November 2021, Liege, Belgium.  
[hvdc21.jicable.org](http://hvdc21.jicable.org)

**CEIDP (Conference on Electrical Insulation and Dielectric Phenomena)**  
12-15 December 2021, Vancouver, Canada  
[ceidp.org](http://ceidp.org)

**CIGRE Kyoto Symposium 2022**  
3-8 April 2022, Kyoto, Japan [cigre.org](http://cigre.org)

**IEEE PES T&D Conference**  
25-28 April 2022, New Orleans, LA, USA  
[ieeepes.org](http://ieeepes.org)

**Clean Power 2022**  
16-20 May 2022, San Antonio, TX, USA  
[cleanpowerexpo.org](http://cleanpowerexpo.org)

**Wire Expo 2022**  
7-8 June 2022, Dallas, TX, USA [wirenet.org](http://wirenet.org)

**Global Offshore Wind 2022**  
21-22 June 2022, Manchester Central, UK  
[events.renewableuk.com](http://events.renewableuk.com)

## Upcoming ICC Events

**Fall 2021: 25 Oct 2021,**  
**Online Session**

**Spring 2022: 1 - 4 May 2022,**  
**Anaheim, CA**

**Fall 2022: 30 Oct - 2 Nov 2022,**  
**Orlando, FL**

**Spring 2023: 30 April - 3 May 2023,**  
**Denver, CO**

## 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 Rachel Mosier at [r.mosier@pdc-cables.com](mailto:r.mosier@pdc-cables.com) or Yingli Wen at [weny@coned.com](mailto:weny@coned.com).*