

# **Distribution Transformers Subcommittee**

## **Task force / Working Group Report**

### **Annex C Distribution Transformers Subcommittee – Chair: Jerry Murphy**

**March 26, 2025**  
**Denver, CO USA**

**Chair: Jerry Murphy**  
**Vice-Chair: Josh Verdell**  
**Secretary: Martin Rave**

#### **C.1 General Opening**

The Chair opened the meeting welcoming everyone and provided opening remarks. The Chair reminded the Working Group (WG) and Task Force (TF) Chairs to keep information up to date on the Transformers Committee website. The Chair also stated copyright and patent issues must be brought to the attention of the Subcommittee. The Chair provided a summary of the status of Distribution Transformers standards. Josh Verdell reviewed the membership changes. A slide was presented welcoming the new members of the Subcommittee. To establish a quorum, a QR code was displayed for tracking attendance. A quorum was established based on QR code responses. Recorded attendance showed 153 in attendance, including 60 of 93 members. The list of attendees and affiliations is attached below.

The meeting agenda was reviewed. Tom Dauzat made a motion and seconded by Dan Sauer to approve the agenda. The meeting agenda was unanimously approved.

The Fall 2024 meeting minutes were reviewed. Marcos Ferreira made a motion and seconded by Phil Hopkinson to approve the meeting minutes. The meeting minutes were unanimously approved.

The Chair then requested WG and TF reports.

#### **C.2 Working Group and Task Force Reports**

##### **██████ C57.12.20 – Overhead Distribution Transformers – Al Traut**

This working group did not meet.

##### **██████ C57.12.28, .29, .30, .31 & C57.12.32 – Enclosure Integrity – Dan Mulkey**

Martin Rave, in the absence of Jeremy Van Horn (Vice-Chair), presented the following minutes from the working group meeting on March 25, 2025, at 8:00 AM MDT with 76 in attendance.

1. Vice-Chair Jeremy Van Horn called the meeting to order at 8:00 AM MDT, with Luke Grandbois acting as secretary.
2. Opening remarks and announcements
  - a. Attendance was taken using a QR code and Microsoft form.
  - b. Dan Mulkey and Audrey Siebert-Timmer could not attend the meeting.
3. Jeremy Van Horn reviewed IEEE SA Essential Patent Claims, Copyright Policy, & Participant Behavior. No issues were raised.
4. Membership changes were noted:
  - a. **Added: Jared Bates, David Rohrer, Tim Mentor, Fernando Meza**

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#### **b. Removed: None**

5. Quorum was verified. The working group consisted of **68** members, requiring **35** for quorum. **37** members were counted at the start of the meeting. Attendance records later confirmed **40** members attended.
6. Jeremy Van Horn requested approval of the Spring 2025 Agenda. Mike Thibault made a motion, second by Marty Rave. Agenda was unanimously approved.
7. Jeremy Van Horn requested approval of the Fall 2024 Minutes. Marty Rave made a motion, second by Mike Thibault for approval of the minutes. Minutes were unanimously approved.
8. Status of Standards:
  - a. C57.12.28 Standard for Pad-Mounted Equipment – Enclosure Integrity, Approved 2023
    - i. Expires: 12/31/2034
    - ii. Status: Published May 7, 2024
  - b. C57.12.29 Standard for Pad-Mounted Equipment – Enclosure Integrity for Coastal Environments, Approved 2023
    - i. Expires: 12/31/2034
    - ii. Status: Published May 7, 2024
  - c. C57.12.30 Standard for Pole-Mounted Equipment – Enclosure Integrity for Coastal Environments, Approved 2020
    - i. Expires: 12/31/2030
    - ii. Status: Plan to request PAR Dec 2026
    - iii. Target: begin ballot Nov 2029
  - d. C57.12.31 Standard for Pole-Mounted Equipment – Enclosure Integrity, Approved 2020
    - i. Expires: 12/31/2030
    - ii. Status: Plan to request PAR Dec 2026
    - iii. Target: begin ballot Nov 2029
  - e. C57.12.32 Standard for Submersible Equipment – Enclosure Integrity, Approved 2019
    - i. Expires: 12/31/2029
    - ii. Par approved: 12/06/2023
    - iii. Par Expires: 12/31/2027
    - iv. Status: Draft 1.5
    - v. Target: begin ballot Nov 2026
9. Old business:
  - a. *Standards Clean up* – Jeremy Van Horn presented on behalf of Dan Mulkey suggested changes to the document:
    - i. In the Definitions clause, clarify the Note in Design tests to articulate the value of repeating design tests periodically.

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There was discussion around the use of the terms “Design Test” and “Type Test” and how they are used in C57.12.80. Mike Thibault made a **motion**, seconded by Stephen Shull to accept the changes but with the term “Design tests” changed to “Enclosure Design Tests”. The motion passed with 29 for, 2 opposed, and 3 abstaining.

- ii. Add “Substrate” as a defined term with the following definition “The uncoated material that provides structural integrity to the enclosure.”

Jerry Murphy made a **motion**, seconded by Tom Dauzat, to accept the proposed change as is. The motion passed with unanimous approval.

- iii. In clause 5.6.6,
  - 1. remove “(QUV)” in the title of the clause,
  - 2. add a sentence stating “This test requirement shall apply only for coated surfaces on the exterior of the enclosure”
  - 3. Modify the first sentence to read “Three coated panels, fabricated per Figure 4, shall be tested per ASTM D4587, Cycle 2 (Ultraviolet Accelerated Weathering) for 504 hours utilizing either the FS-40 or UVB-313EL lamps...” in line with the C57.12.28-29 standards.

A **motion** was made by Justin Minikle and seconded by Paul Chisholm to approve the clause as presented. The motion passed unanimously.

- iv. In clause C.1 General, add a footnote to NACE stating “In 2021, SSPC and NACE were merged under the auspices of AMPP (Association for Materials Protection and Performance) standards program and accredited by ANSI on 05-01-2024. Their present policy is that revisions to published SPCC and NACE documents will retain the legacy numbering system.”

A **motion** was made by Tom Dauzat and seconded by Mike Thibault to approve the footnote as presented. The motion passed unanimously.

- b. *Task Force on 4.2.9 Flame Test* – Bruce Webb presented the findings from the task force looking at Clause 4.2.9. The task force recommended adding the following clause:

“Clause 4.2.9 Fire Resistance

The enclosure shall be constructed of fire-resistant material. Non-metallic enclosures shall be made from material having a flammability rating of V-0, 5VA per UL 94 (IEC 60695-11-10-20) testing methods.”

A **motion** was made by Tom Dauzat and seconded by Jerry Murphy to approve the clause as presented. The motion passed unanimously.

- c. *Task Force on Holiday definition* – Justin Minikel presented the following proposed definition to “holiday”:

**“Holiday:** *A small, pinhole sized void or discontinuity in a coating that exposes the underlying material.*

NOTE-Typically caused by errors in surface preparation or application of coating materials, holidays can create corrosion cells that reduce the life of a protective coatings system.”

A **motion** was made by Paul Chisholm and seconded by Gilbert Kozar to approve the clause as presented. The motion passed unanimously.

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- d. *Impact Test* – Justin Minikel presented a proposed change to clause 5.5 Test Specimens by modifying the beginning of the clause to read as follows:

“Test specimens shall consist of panels of the same material composition used in production and employ a representative gauge thickness based on the typical production part. Test specimens shall be fabricated in accordance with Figure 3, Figure 4, Figure 5, and Figure 6 as to size and design. Quantity and type...”

A **motion** was made by Robert Reepe and seconded by Nabi Almeida to approve the clause as presented. The motion passed unanimously.

#### 10. New Business

- a. *Fire Resistance Task Force Recommendation* – Bruce Webb presented a proposed new clause 4.2.10 with the following language:

##### “4.2.10 Non-Metallic Enclosure

Any non-metallic enclosure shall retain an outdoor suitability rating of f1 per UL 746C.”

Tom Dauzat pointed out that for different plastics it is not always easy to find these ratings. A **task force** was formed to investigate further and provide an updated recommendation. The Task Force is chaired by Bruce Webb and consists of the following members:

- Bruce Webb - Chair
- Noah Chesser
- Mike Thibault
- Joel Pacas

- b. *Impact test in clause 5.6.4* – Jake Draxton led a discussion on the size of the indenter in C57.12.32 relative to the other Enclosure Integrity standards.

A **task force** was formed to investigate. The Task Force is chaired by Jake Draxton and consists of the following members:

- Jake Draxton – Chair
- Justin Minikle
- Vinay Patel

- c. *Insulating Liquid Resistance, in clause 5.6.5* – Jake Draxton led a discussion on the language of “using either method”.

There was discussion around the scratch method and the gouge method and how the gouge method is generally more telling. It was decided that Jake Draxton’s Task Force would increase its scope to include a proposal to modify the language from “using either method” to “using the gouge hardness method”.

- d. *Abrasion Resistance in Clause 5.6.8* – Jake Draxton led a discussion on the interpretation of “1000 g weight” with two-arm test rig.

It was decided that Jake Draxton’s Task Force would increase its scope to include a recommendation for wording to make it explicitly clear within the standard that the 1000 g weight is per arm.

- e. *Polls for document changes* – Jeremy Van Horn led a discussion on the group’s appetite to address comments that had previously been brought up, including revisiting the UV test method/requirements, adding a better color standardization, and consolidating some of the standards.

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A **task force** was formed to investigate adding a better color standardization. The Task Force is chaired by Jeremy Van Horne and consists of the following members:

- Ken Rieke
- Alejandro Macias
- Jake Draxton
- Brian Karplonski
- Mike Zarnowski
- Patrick Kozar
- Justin Mininkle
- Dan Mulkey
- Jeremy Van Horne - Chair

11. Next meeting: October 21, 2025, in Bonita Springs, Florida, USA.

a. The following attendees requested membership and will be added to membership for the Fall 2025 meeting:

- i. Fernando Duarte (EPRI)
- ii. Fernando Tirado (Prolec)
- iii. Gilberto Garza (Prolec GE)
- iv. Huan Dinh (Hitachi Energy)
- v. Hugo Murillo (The H-J Family)
- vi. Jake Draxton (Sherwin-Williams)
- vii. Jim Cai (JSHP Transformers)
- viii. Martin Munoz (Orto de Mexico)
- ix. Miguel Garcia (Hitachi Energy)
- x. Nicholas Manske (Oncor Electric Delivery)
- xi. Pragnesh Vyas (Cleveland Cliffs)

12. The meeting was adjourned at 9:15 AM CST.

Submitted by: Luke Grandbois

Date: March 25, 2025

#### **List of Members:**

<i>Alex Ayala (Power Partners)</i>
<i>Martin Bachand (Cloverdale Paint Inc.)</i>
<i>Jeffrey Brooks (POWER Engineers)</i>
<i>Darren Brown (Howard Industries)</i>

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<i>Noah Chesser (Oncor Electric Delivery)</i>
<i>John Chisholm (IFD Technologies)</i>
<i>Douglas Craig (Richards Manufacturing Co.)</i>
<i>Thomas Dauzat (AEP)</i>
<i>Craig Derouen (ERMCO)</i>
<i>James Gardner (Prolec GE)</i>
<i>Carlos Gaytan (Prolec GE)</i>
<i>Ali Ghafourian (H-J Enterprises, Inc.)</i>
<i>Ramadan Issack (American Electric Power)</i>
<i>Gary King (Howard Industries)</i>
<i>Gilbert Kozar (Northeast Transformer Services, LLC)</i>
<i>Patrick Kozar (Northeast Transformer Services, LLC)</i>
<i>Andrew Larison (Hitachi Energy)</i>
<i>Tiffany Lucas (Prolec GE)</i>
<i>Alejandro Macias (CenterPoint Energy)</i>
<i>Justin Minikel (EATON Corporation)</i>
<i>Michael Morgan (Duke Energy)</i>
<i>Daniel Mulkey (Mulkey Engineering Inc.)</i>
<i>Jerry Murphy (Chen Moore &amp; Associates)</i>
<i>Dwight Parkinson (EATON Corporation)</i>
<i>Vinay Patel (Consolidated Edison Co. of NY)</i>
<i>Miguel Plascencia (Pacific Gas &amp; Electric)</i>
<i>Ion Radu (Hitachi Energy)</i>
<i>James Ratty (Electronic Technology Inc.)</i>
<i>Martin Rave (IFD Technologies)</i>
<i>Robert Reepe (Georgia Power Co.)</i>
<i>Mason Rush (Central Moloney Inc)</i>
<i>Pedro Salgado (Electronic Technology Inc.)</i>
<i>Stephen Shull (BBC Electrical Services, Inc.)</i>
<i>Igor Simonov (Toronto Hydro)</i>
<i>Edward Smith (H-J Family of Companies)</i>
<i>James Spaulding (Fort Collins Utilities)</i>
<i>Michael Thibault (Pacific Gas &amp; Electric)</i>
<i>Alan Traut (Howard Industries)</i>
<i>Reinaldo Valentin (Duke Energy)</i>
<i>Jeremy Van Horn (IFD Technologies)</i>
<i>Joshua Verdell (ERMCO)</i>
<i>Shelby Walters (Howard Industries)</i>
<i>Alan Wilks (Consultant)</i>
<i>Michael Zarnowski (Carte International)</i>

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### List of Guests:

<i>Jared Bates (Oncor Electric Delivery)</i>
<i>Matthew Chisholm (IFD Technologies)</i>
<i>Janet Crockett (Fayetteville PWC)</i>
<i>John Crotty (Ameren)</i>
<i>Rohrer David (First Energy)</i>
<i>Huan Dinh (Hitachi Energy)</i>
<i>Jake Draxton (Sherwin-Williams)</i>
<i>Sanford Fong (Georgia Power Co.)</i>
<i>Kevin Frye (Central Moloney Inc.)</i>
<i>Luke Grandbois (IFD Technologies)</i>
<i>Garza Hector (Orto de Mexico)</i>
<i>Jason Lambert (JST Power)</i>
<i>Nicholas Manske (Oncor Electric Delivery)</i>
<i>Timothy Menter (Lincoln Electric System)</i>
<i>Fernando Meza (Power Partners)</i>
<i>Charles Morgan (Eversource Energy)</i>
<i>Martin Munoz (Orto de Mexico)</i>
<i>Stefan Schindler (Maschinenfabrik Reinhausen)</i>
<i>Fernando Tirado (Prolec)</i>
<i>Bruce Webb (Knoxville Utilities Board)</i>
<i>Kangjin Lee (Cheryong Electric)</i>
<i>Rebecca Kim (Cheryong Electric)</i>
<i>Jim Cai (JSHP Transformers)</i>
<i>Nicholas Post (WEC Energy Group)</i>
<i>Joel Pacas (IFD Technologies)</i>
<i>Brian Conneighton (Cleveland-Cliffs)</i>
<i>Bryan Marquardt (Cleveland-Cliffs)</i>
<i>Fernando Duarte (EPRI)</i>
<i>Pragnesh Vyas (Sunbelt Solomon)</i>
<i>Juan Velasquez (Magnetron SAS)</i>
<i>Hugo Murillo (The H-J Family)</i>
<i>Joel Schumack (Ameren)</i>
<i>Gilberto Garza (Prolec GE)</i>
<i>Miguel Garcia (Hitachi Energy)</i>
<i>Qasim Khan (NEETRAC - Georgia Tech)</i>
<i>Vedrana Starcevic Prebeg (Koncar-DFST)</i>
<i>David Cordova (Maddox Industrial XFMR)</i>
<i>Robert Mennonna (Maddox Industrial XFMR)</i>
<i>Holly Wassall (JST Power)</i>
<i>Megan Bereswill (JST Power)</i>

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#### **C57.12.34 – Three Phase Pad-Mount Transformers – Steve Shull**

Steve Shull presented the following minutes from the working group meeting on March 24, 2025, at 3:15 PM MDT with 93 in attendance.

The Chair called the meeting to order at 3:15 P.M. MDT on March 24, 2025. Attendees verbally identified themselves by name and affiliation.

1. IEEE Privacy Policy  
The Chair verbally stated and explained in detail all the information according to IEEE Privacy Policy.
2. New Members  
The Chair announced and recognized the newest members to the Working Group. The Chair also explained the process of becoming a member and retaining membership status.
3. Meeting Quorum  
The Chair displayed the members of the WG and a quorum was established.
4. Agenda Approval  
The Chair displayed the agenda for this meeting. A motion was made by Tom Dauzat and seconded by Jerry Murphy to “Approve the Agenda as shown”. The Chair asked for any opposition to the displayed Agenda to which no opposition was observed. The Agenda was approved as shown.
5. Minutes Adjustment  
Prior to approval of the minutes for the previous WG session in St. Louis MO, the Chair advised there was some confusion as to the intent of the motion for approving the changes proposed by Task Force 4 regarding article 7.2 and the value of the induced test voltage. The WG Chair explained, as affirmed by the Task Force Chair, that while the WG had approved to move forward with a revision to the induced voltage rating to 2X rated voltage in lieu of 3.46X rated + 1000V, the WG had also decided to delay any wording changes until the task force had an opportunity to review the rest of the document to ensure nothing had been missed or duplicated. Considering this, the WG Chair recommended revision of the previous session’s minutes by striking the last sentence of the Fall 2024 minutes as shown in the attached revised minutes.  
  
A motion to approve the amended minutes was made by Carlos Gaytan and seconded by Martin Rave. The Chair asked for any discussion and there was none. There was no opposition to the proposed modification.
6. Minutes Approval  
Upon approval of the motion to amend the previous minutes, a motion was made by Carlos Gaytan and seconded by Martin Rave to “approve the Last Meeting Minutes as modified”. The Chair asked if there was any opposition to approving the amended minutes to which no opposition was observed. These amended Minutes were approved.
7. Confirmation of IEEE SA Essential Patent Statement  
The patent information request was displayed. The chair provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or if a participant is personally aware of patent claim(s)/patent application claim(s) that may be essential for the use of this standard. There were no responses to this request so no patent claim(s)/patent application claim(s) were identified.
8. IEEE SA Copyright Policy Statement and Participant Behavior Policy were shown without any discussion or objection.



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#### 9. Old Business

##### a. Three Phase Transformer Standards Comparison – Test Sections

Alan Traut reviewed the information of the past and present three phase standards as they pertain to the required induce voltage testing level. Alan Traut shared the following observations:

- C57.12.26-1992: Specified that “Transformer primary is designed for solidly-grounded application”
- C57.12.34-2004: Eliminated text clarifying that the voltage was a line to ground voltage. Deleted the sentences “which will develop from the high voltage line terminal to ground” from the 1992 version, and “In no case, however, shall the line-to-ground voltage developed exceed...”
- C57.12.34-2009: Replaced “high-voltage winding”, with “winding with a voltage greater than 600 V”. Added text of exemption of chopped wave test
- C57.12.34-2015: No major changes other than update references to other Stds.
- C57.12.34-2022: No major changes other than update references to other Stds.

He pointed out that only the C57.12.34 standard required the 3.46X rated +1000V voltage level for induced voltage testing, whereas all other three phase standards relied on a 2X rated voltage level.

##### b. C57.12.34 Induced Voltage Testing discussion

Michael Zarnowski, TF#4 Chair, revisiting the induced voltage test level of 3.46X rated + 1000V and how such a level exceeds phase-to-phase internal clearances, coil-to-coil insulation and switch ratings. He noted that the WG discussed the current wording of clauses 7.1, 7.2 and 7.3. They recommended that 7.2 be rewritten. They recommended that 7.3 be retained because this was done with the understanding that standard C57.12.34 is intended for transformers designed for distribution and not power.

Carlos Gaytan presented an alternative proposal to clause 7.2 based on the observation that the TF#4 proposed revision of changing the induced voltage test level to 2X rated would not be applicable to units where the neutral was internally grounded, and that in such cases, a special induced voltage test level would be required that induces a line-to-ground voltage in the HV winding close to the specified value of the applied voltage test. The alternative proposal presented by Carlos was discussed at length, covering the use of either three-phase or single-phase sources to apply the test voltage, applicability of test voltage levels to graded insulation in the case of grounded WYE-WYE transformers, and the feasibility of always being able to remove the neutral ground connection. His presentation is included in the appendix of these minutes

After continued discussion, a motion to approve the TF#4 proposed wording for clause 7.2. was made by Michael Zarnowski and seconded by Jerry Murphy.

##### • 7.2 Dielectric tests

*For wye-wye connected transformers with a high voltage winding neutral terminal with interconnected or internally grounded neutrals, no applied voltage test is required on a winding greater than 600 V.*

*When high- or low-voltage terminations are used that fall under IEEE Std 386, they may not be suitable for chopped wave testing; therefore, when terminations that*

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*conform to IEEE Std 386 are used (bushing wells, 600 A integral bushings, etc.)  
chopped wave tests are not required.*

The Chair asked for any discussion on the proposed change and, upon no further discussion, initiated a vote to approve the motion. The motion carried with the following results:

- Those in favor: 28
- Those opposed: 2
- Abstentions: 5

#### 10. New Business

TF4 pointed out a discrepancy between the wording of clause 8.7.4.1 titled “Neutral Terminal – 600V and Below” and Figures 2 and 6 which have an option for an H0. The Chair displayed the proposed wording by TF#4 to address the discrepancy.

##### *8.7.4.1 Neutral terminal—600 V and below*

*The neutral terminal shall be either a blade connected directly to the tank or a fully insulated terminal. If a fully insulated terminal is used, a ground pad shall be provided on the outer surface of the tank. One or more removable ground straps suitably sized for the short-circuit rating of the transformer as defined in IEEE Std C57.12.00-2021 shall be provided and connected between the neutral terminal and the ground pad. For wye-wye connected units ~~where, the high-voltage and low voltage neutral are shall be connected to the low-voltage neutral~~ **together internally, there shall be** with provisions for opening this connection for testing.*

A motion to approve the TF4 proposed wording for clause 7.2. was made by Michael Zarnowski and seconded by Gary King. The Chair asked for any discussion on the proposed change and upon no further discussion, initiated a vote to approve the motion. The motion carried with the following results:

- Those in favor: 27
- Those opposed: 1
- Abstentions: 8

11. After concluding new business, the Chair advised the new draft of the standard will be published for careful review by members, with a vote to go to Ballot in the upcoming Fall meeting.

12. The meeting adjourned at 4:30 P.M. MDT.

Submitted by: Nader Masoud

Date: 3/24/2025

#### Attendance:

A sign-up sheet was circulated with total of 93 in attendance including 40 Members and 53 Guests of which 8 requested Membership.

First Name	Last Name	Company	Role
Alejandro	Ayala	Power Partners	Member
Jared	Bates	Oncor Electric Delivery	Member
Thomas	Callsen	Weldy-Lamont Associates	Member
Noah	Chesser	Oncor Electric Delivery	Member

First Name	Last Name	Company	Role
James	Spaulding	Fort Collins Utilities	Member
Michael	Thibault	Pacific Gas & Electric	Member
Jeremy	Van Horn	IFD Technologies Inc.	Member
John	Vartanian	National Grid	Member

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Thomas	Dauzat	AEP-SWEPCO	Member
Carlos	Gaytan	Prolec GE	Member
Kenneth	Hampton	Baltimore Gas & Electric	Member
Gary	King	Consultant	Member
Gilbert	Kozer	Northeast Transformer Services, LLC	Member
Patrick	Kozer	Northeast Transformer Services, LLC	Member
Alejandro	Macias	Centerpoint Energy	Member
Nicholas	Manske	Oncor Electric Delivery	Member
Lee	Mathews	Howard Industries	Member
Michael	Morgan	Duke Energy	Member
Ion	Radu	Hitachi Energy	Member
Martin	Rave	IFD Technologies	Member
Robert	Reepe	Georgia Power Co.	Member
Mason	Rush	Central Moloney	Member
Jaber	Shalabi	VanTran Industries, Inc.	Member
Michael	Shannon	Rea Magnet Wire	Member

Pragnesh	Vyas	Cleveland Cliffs	Member
Zachary	Weiss	WEG Transformers USA Inc.	Member
Michael	Zarnowski	Carte International	Member
Rehan	Ali	Siemens Energy	Member
Jeffrey	Brooks	Asplundh Engineering Services	Member
Jose	Gamboa	H-J Family of Companies	Member
Giovanni	Hernandez	Virginia Transformer Corp.	Member
Ramadan	Issack	American Electric Power	Member
Brian	Klaponski	Carte International	Member
Weijun	Li	Braintree Electric Light Dept.	Member
Parry	Lively	Tempel	Member
Jerry	Murphy	Chen Moore and Associates	Member
Dwight	Parkinson	EATON Corporation	Member
Reinaldo	Valentin	Duke Energy	Member
Bruce	Webb	Knoxville Utilities Board	Member
Joshua	Yun	Virginia Transformer Corp.	Member

First Name	Last Name	Company	Role
Jerry	Allen	Metglas, Inc.	Guest
Kevin	Biggie	Weidmann Electrical Technology	Guest
Brian	Connelghton	Cleveland-Cliffs	Guest
Janet	Crockett	Fayetteville PWC	Guest
Hector	Garza	Orto de Mexico	Guest
Luke	Grandbois	IFD Technologies	Guest
Kendrick	Hamilton	ERMCO	Guest
Thomas	Holifield	Howard Industries	Guest
Patrycja	Jarosz	IEEE SA	Guest
Braxton	Jones	SD Meyers	Guest
Adam	Klaponski	Carte International Inc.	Guest
Fredy	Murcia	Siemens Energy	Guest
Stephen	Oakes	WEG Transformers USA Inc	Guest
Joel	Pacas	IFD Technologies	Guest
Stefano	Schindler	Reinhausen	Guest
Alan	Traut	Howard Industries	Guest
Joshua	Verdell	ERMCO	Guest
Allen	Hsiao	Shihlin Electric	Guest
Rebecca	Kim	Cheryong Electric	Guest
Kang-Jtw	Lee	Cheryong Electric	Guest
Antonio	Robles	Bureau of Reclamation	Guest

First Name	Last Name	Company	Role
Stephen	Walbach	Alabama Power	Guest
Nicholas	Koinis	Centerpoint Energy	Guest
Nihat	Kosedagi	ERMCO	Guest
Nabi	Almeida	Prolec GE	Guest
John	Crotty	Ameren	Guest
Fernando	Duarte	Hitachi	Guest
Kyle	Heiden	EATON Corporation	Guest
Justin	Minikel	EATON Corporation	Guest
Hugo	Murillo	H-J Family of Companies	Guest
Nicholas	Post	WEC Energy Group	Guest
Jospeh	Schumack	Ameren	Guest
Mohammed	Sohail	Trench Limited	Guest
Tim	Tillery	Howard Industries	Guest
David	Walker	MGM Transformer Co.	Guest
Shelby	Walters	Howard Industries	Guest
Alan	Fujimori	Romagnole	Guest
Juan	Rodriguez	Magnetron	Guest
Yeounsoo	Kim	JST Power Equipment	Guest
Fernando	Tirado	Prolec GE	Guest
Jiahao	Xie	S&C Electric	Guest
Ben	Hershberger	Midwest Transformer	Guest

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Luya	Peuc	Koncar Dist.	Guest	Rich	Cryer	Digitalgrid inc.	Guest
Mathew	Greenhaw	OG&E	Guest	Curtis	Moore	Digitalgrid inc.	Guest
Stanley	Yeh	Shihlin Electric	Guest	Chris	Brown	SDGE	Guest
Gilberto	Garza	Prolec GE	Guest	Fidel	Castro	SDGE	Guest
Scott	Beck	Trantech Radiator Products	Guest	Prudhvi	Bhattiprolu	AES	Guest
Hector	Villa	Ecuatran SA	Guest				

The following are the WG amended C57.12.34 Fall 2024 meeting minutes.

The Chair called the meeting to order at 3:15 P.M. CDT on October 28, 2024. Attendees verbally identified themselves by name and affiliation.

### 13. IEEE Privacy Policy

The Chair verbally stated and explained in detail all the information according to IEEE Privacy Policy.

### 14. Meeting Quorum

The Chair displayed the members of the WG and a quorum was established.

### 15. Agenda Approval

The Chair displayed the agenda for this meeting. A motion was made by Tom Dauzat and seconded by Lee Matthews to “Approve the Agenda as displayed”. The Chair asked any opposition to the displayed Agenda to which no opposition was observed. The Agenda was approved as displayed.

### 16. Minutes Approval

The Chair stated the Last Meeting Minutes were available online. A motion was made by Jerry Murphy and seconded by Mike Thibault to “approve the Last Meeting Minutes as shown online”. The Chair asked any opposition to approved these minutes as posted to which no opposition was observed. The Last Meeting Minutes were approved.

### 17. Confirmation of IEEE SA Essential Patent Statement

The patent information request was displayed. The chair provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or if a participant is personally aware of patent claim(s)/patent application claim(s) that may be essential for the use of this standard. There were no responses to this request so no patent claim(s)/patent application claim(s) were identified.

### 18. IEEE SA Copyright Policy Statement and Participant Behavior Policy were shown without any discussion or objection.

### 19. Old Business

#### Task Force Reports

- TF #2 – The Task Force reported that “Although we are seeing higher kVA units for the voltages listed in Table 3, these requests are tied specifically to projects customized to the site, including the special short circuit current designs to accommodate these requirements.

As such, the TF did not feel it would be appropriate for an IEEE standard to increase the kVA ratings in Table 3.

However, the TF did recommend that the addition of voltages of 416Y/240 and 690Y/398.”

## **Distribution Transformers Subcommittee**

### **Task force / Working Group Report**

A motion was made by Igor Simonov and seconded by Gary King to accept these changes. The Chair asked if there was any opposition to approved this motion as presented to which no opposition was observed.

- TF #5 – Update bushing drawings to reference C57.19.02 and make them consistence with a common labeling practice, i.e.  $X_3$  and not  $X3$ . Since this was editorial, no motion or vote was taken.

This taskforce also made modification to the standard to incorporate the reference to C57.19.02. This resulted in the removal of Figure 19 and 20 since these are reflected in C57.19.02. The tables in these figures were moved to Article 8.7.3 *600 V and below terminals*. This also resulted in modification of this section which is reflected in the current draft.

- TF #4 Test Review – A presentation was made by Michael Zarnowski and Andrew Larison related to Article 7.2 *Dielectric Tests*. The issue that was seen was using an induced test voltage of 3.46X rated + 1000 which at the 125 kV BIL and 150 kV BIL Voltage Test Limits exceeded induced test limits exceed voltage ratings for certain accessories such as dual voltage switches and underoil load break switches and exceeds the interphase insulation levels and under oil lead spacing. This had resulted in advertent failures. The recommendation of the task force was to change the value to 2X rated voltage. After considerable discussion, a motion was made by Gary King to use the 2X rated induced test voltage. The motion was seconded by Rhett Chrysler and the motion passed. ~~The article will be changed to:~~

~~*Dielectric test levels shall be in accordance with the distribution transformer test levels in IEEE Std C57.12.00.<sup>1</sup>*~~

Having run out of meeting time, the meeting adjourned at 4:30 P.M. CDT.

<sup>1</sup> Removed by Vote. See Spring 2025 meeting minutes.

Submitted by: Alan Wilks

Date: 10/28/2024

#### **██████ C57.12.35 – Bar Coding for Transformers and Regulators– Rhett Chrysler**

This working group did not meet.

#### **██████ C57.12.36 – Distribution Substation Transformers – Jerry Murphy**

This working group did not meet.

#### **██████ C57.12.37 – Electronic Reporting of Dist Tr Test Data – Alan Traut**

Alan Traut presented the following minutes from the working group meeting March 25, 2025, at 1:45 PM MDT with 44 in attendance.

1. Chair called the meeting to order at 1:45 pm MDT. Members introduced themselves with their affiliation. Paper rosters were circulated to record attendance.

## **Distribution Transformers Subcommittee**

### **Task force / Working Group Report**

2. Chair called for identification of essential patents pertaining to the work of this WG. None brought forward. Copyright policy presented. No issues identified.
3. Chair Report
  - a. PAR for revision of C57.12.37 approved on 2/15/2024 with an expiration date of 12/31/2028.
  - b. The current published document C57.12.37-2015 expires 12/31/2025.
4. Total attendance was 44. 25 of 49 members were present and a quorum was declared. Of the 19 guests in attendance, 6 were returning guests and 13 were new guests not on the previous roster. A total of 4 guests requested membership. (2 returning and 2 new guests)
5. Motion to approve the meeting agenda (Steve Shull / Jerry Murphy). Meeting agenda was unanimously approved.
6. Motion to approve the meeting minutes from Fall 2024 St. Louis meeting (Jerry Murphy / Alejandro Macias). Meeting minutes were unanimously approved.
7. The Chair presented edits to the Draft by Dan Mulkey and Ed teNyenhuus after the Fall 2024 meeting. Their edits consisted of punctuation and grammar changes. The resulting document was referred to as Draft 3. The floor was then opened for comments on Draft 3.
8. Josh Verdell made a motion to add X/R ratio (“*with whatever number of spaces needed*”), taking space from the reserve space. The motion was seconded by Alejandro Macias. The motion passed with the following votes being cast:
  - 7 in favor
  - 5 opposed
  - 10 abstentions

After a lengthy discussion, it was then decided that a format of F5.2 was needed to accurately report on the X/R ratio of distribution transformers due to their wide range of sizes.

9. The Chair will make the following modifications to the document and call it “Draft 4”
  - a. Insert new paragraph **4.3.1.2 X/R ratio with a format of F5.2.**
  - b. Fix lower case references to the “**doe**”
  - c. **Change the term “fluid” to “liquid”** in 4.2.23 and Table 2
10. A motion was made to take Draft 4 to ballot (Jerry Murphy / Josh Verdell). The vote was 17 For, 0 Opposed, and 8 Abstentions. Membership present was 25.
11. A motion was made to create a **Comment Resolution Group** with the authority to make editorial and minor technical changes. (Jerry Murphy / Steve Shull) It was unanimously approved. The Comment Resolution Group will consist of the following volunteers:
  - Al Traut
  - Bruce Webb
  - Jerry Murphy

## Distribution Transformers Subcommittee Task force / Working Group Report

- Steve Shull
- Josh Verdell
- Carlos Gaytan

12. Next meeting – Bonita Springs, FL October 19-23, 2025

13. Meeting adjourned at 3:05pm CDT.

Submitted: Thomas Callsen, Secretary

Date: 03/31/2025

Attendance:

First Name	Last Name	Company or Affiliation	Role	First Name	Last Name	Company or Affiliation	Role
Alex	Ayala	Power Partners	Member	Jerry	Murphy	Chen Moore & Associates	Member
Gills	Bargome	Fiso	new	Daniel	Obregon (?)	TTE Transformers	new
Jared	Bates	Oncor Electric Delivery	Member	Joel	Pacas	IFD Corporation	Guest
Darren	Brown	Howard Industries	Member	Dwight	Parkinson	Eaton	Member
Chris	Brown	San Diego Gas & Electric	new	Nicholas	Post	WEC Energy Group	Guest ®
Thomas	Callsen	Weldy-Lamont Associates	Secretary	Ion	Radu	Hitachi Energy	Member
Noah	Chesser	Oncor Electric Delivery	Member	Martin	Rave	IFD Technologies	Guest
Brian	Connishton	Cleveland-Cliffs	new ®	Robert	Reepe	Georgia Power Co.	Member
Janet	Crockett	Fayetteville PWC	Member	Mason	Rush	Central Moloney Inc	Member
Thomas	Dauzat	AEP - SWEPCO	new ®	Joe	Schumack	Ameren	Member
Gilberto	Garza	Prolec GE	new	Stephen	Shull	BBC Electrical Services, Inc.	Member
Carlos	Gaytan	Prolec GE	Member	Michael	Thibault	Pacific Gas & Electric	Vice-Chair
Luke	Grandbois	IFD Technologies	new	Fernando	Tirado	Prolec GE	Guest ®
Kenneth	Hampton	Baltimore Gas & Electric	Member	Alan	Traut	Howard Industries	Chair
Jen Carlos	Hernandez-Majia	Georgia Tech -- NEETRAC	new	Joshua	Verdell	ERMCO	Member
Ramadan	Issack	American Electric Power	Member	Shelby	Walters	Howard Industries	Member
Patrycja	Jarosz	IEEE SA	new	Bruce	Webb	Knoxville Utilities Board	Member
Gary	King	Consultant	Guest	Paul	Weyandt	Schneider Electric	Member
Nicholas	Koimis	Centerpoint Energy	new	Stephen	Wolbach	Alabama Power	new
Alejandro	Macias	Centerpoint Energy	Member	Jiahao	Xie	S&C Electric	new
Tim-Felix	Mai	Siemens Energy	new				
Nicholas	Manske	Oncor Electric Delivery	Member		<b>Guest ®</b>	Guest requesting membership	
Nader	Masoud	Central Moloney Inc	Member		<b>new</b>	First time guest, not on previous roster	
Lee	Matthews	Howard Industries	Guest		<b>new ®</b>	First time guest requesting membership	

### ■ C57.12.38 – Single-Phase Pad-Mounted Transformers – Ali Ghafourian

This working group did not meet.

### ■ C57.12.39 – Tank Pressure Coordination – Carlos Gaytan

Carlos Gaytan presented the following minutes from the working group meeting March 25, 2025, at 4:45 PM MDT with 50 in attendance.

1. Carlos Gaytan called the meeting to order at 4:45 PM MST. Group introductions were made.
2. Carlos Gaytan reviewed IEEE SA Copyright Policy and Essential Patent Claims. No issues were raised.
3. Quorum was verified. The working group consisted of 41 members, requiring 21 for quorum. Attendance records confirmed 21 members were present for the meeting.

## **Distribution Transformers Subcommittee**

### **Task force / Working Group Report**

4. Carlos Gaytan requested approval of the Spring 2025 Agenda. Jerry Muphy made a motion, second by Steve Shull. The agenda was unanimously approved.

5. Carlos Gaytan requested approval of the Fall 2024 Minutes. Marty Rave made a motion, second by Al Traut for approval of the minutes. Minutes were unanimously approved.

6. Old Business

a. Task force report: Liquid Preservation – Luke Grandbois

Luke Grandbois presented the recommendations of the task force for Clause 4.1 Liquid Preservation. The group discussed the recommendation and agreed to add a comma for clarity. The clause, as modified and agreed by the working group is the following:

“By manipulating the tank size, liquid volume, and gas space, the sealed-tank system shall be designed so the internal gas pressure does not exceed 49 kPa (gauge) (7 psig), or -35 kPa (gauge) (-5 psig) while operating within the conditions described in the preceding paragraph without relying upon pressure regulating devices.”

A motion was made by Jerry Murphy and seconded by Marty Rave to accept the clause as proposed and modified by the group. The motion passed unanimously

b. Task force report: Compromising deformation – Luke Grandbois

Luke Grandbois presented the second recommendation of the task force, which is the following updated definition for the term “compromising deformation”:

“compromising deformation: elastic or plastic deformation that precludes normal operation of transformer sealing and cabinet security; compromises mechanical operation of covers or doors, electrical clearances, thermal operation, or the tank’s ability to shed water; or creates areas where corrosive elements can accumulate.”

A motion was made by Steve Shull and seconded by Josh Verdell to accept the definition as proposed. The motion passed unanimously.

c. Task force report: Assess potential conflict with C57.12.00 – Luke Grandbois

Luke Grandbois presented the third finding of the task force, which was to determine whether Clause 4.1.2.2 of C57.12.00 presented a conflict with clause 4.1 of C57.12.39 as it relates to the temperature requirement.

The task force found that no conflict was present between the clauses and recommended that no change to the clause be made.

The working group discussed the proposal and commented that the clause could be interpreted that the transformer doesn’t need to be sealed from -5 to -20 C. Further discussion revealed that -5 C was an acceptable lower temperature limit for a transformer operating at full load.

The working group agreed with the task force’s recommendation. No motion was required as no change was made

d. Review of Draft 1.1 – Carlos Gaytan

Carlos reviewed the changes the working group had previously agreed to in the Draft 1.1 document.

It was discussed that the change to the purpose was acceptable since it had not been included in the PAR.



## **Distribution Transformers Subcommittee**

### **Task force / Working Group Report**

Luke Grandbois commented that the purpose is different than the 2017 published version. Carlos mentioned that the draft was based on the latest draft produced by the working group in the previous revision, rather than the version that had been published, since an updated editable template of the 2017 publication had not been provided to the working group by IEEE at this time. It has been requested.

Carlos requested that members of the working group review the draft document prior to the Fall meeting, with the objective of possibly going to ballot in the Fall 2025 meeting.

#### 7. New business

- a. No new business was raised by the working group.

#### 8. Next meeting: October 21, 2025 in Bonita Springs, FL, USA

- a. The following guests requested membership and met the criteria; they will be added to the membership list following the meeting: John Crotty, Tom Dauzat, Gilberto Garza, Rebecca Kim, Joseph Shumack, Shelby Walters

#### 9. The meeting was adjourned at 4:25 PM MDT.

Submitted by: Jeremy Van Horn

Date: March 25, 2025

#### **List of Members**

Nabi Almeida (Prolec GE)

Alejandro Ayala (Power Partners)

Samuel Brodeur (Hitachi Energy)

Darren Brown (Howard Industries)

Jim Cai (JSHP Transformers)

Paul Chisholm (IFD Technologies)

Janet Crockett (Fayetteville PWC)

Carlos Gaytan (Prolec GE)

Luke Grandbois (IFD Technologies Inc.)

Didier Hamoir (Transformer Protector Corp)

Ramadan Issack (AEP)

Andrew Larison (Hitachi Energy)

Alejandro Macias (Centerpoint Energy)

Jerry Murphy (CMA)

Dwight Parkinson (Eaton Corp.)

Marty Rave (IFD Technologies Inc.)

Stephen Shull (BBC Electrical Services)

Fernando Tirado (Prolec GE)

Alan Traut (Howard Industries)

## **Distribution Transformers Subcommittee**

### **Task force / Working Group Report**

Jeremy Van Horn (IFD Technologies Inc.)

Joshua Verdell (ERMCO)

#### **List of Guests**

Rehan Ali (Siemens Energy, inc.)

Brian Conneighton (Cleveland-Cliffs)

John Crotty (Ameren)

Tom Dauzat (AEP)

Fernando Duarte (Hitachi Energy)

Hugo Flores (Ermco)

Gilberto Garza (Prolec GE)

Ken Hampton (BGE )

Rebecca Kim (Cheryong Electric)

Yeounsoo Kim (JST power equipment)

Kang Jin Lee (Cheryong Electric)

Justin Minikel (Eaton)

Martin Muñoz (Orto)

Hossein Nabi-bidhendi (ITEC)

Juan Ortiz (Reinhausen Manufacturing )

Joel Pacas (IFD Technologies)

Ashwin Padmanaban Iyer (STP)

Juan Rodriguez (Magnetron)

Joe Schumack (Ameren)

Stefan Schindler (Maschinenfabrik

Reinhausen )

Ahmad Skeik (Crosslink Technology)

Mike Thibault (pacific gas and electric )

Timothy Tillery (Howard Industries)

Juan Velasquez (Magnetron sas)

Hector Villa (Ecuatran SA)

Pragnesh Vyas (Cleveland Cliffs)

Shelby Walters (Howard Industries)

Joshua Watson (NPPD)

Michael Zarnowski (Carte)

## **Distribution Transformers Subcommittee**

### **Task force / Working Group Report**

#### **C57.15 – Step-Voltage Regulators – Dan Sauer**

Dan Sauer presented the following minutes from the working group meeting March 24, 2025, at 4:45 PM MDT with 37 in attendance.

1. Opening of meeting and introductions
  - a) If you did not receive the emailed agenda, please update your email address with the WG officers

Dan Sauer started the meeting at 16:46 with introductions from the officers and audience.
2. Record attendance

We requested a quorum check, and we had 18 members present against a list of 27 members. Quorum achieved.
3. Approval of agenda

Motion by Miguel Plascencia seconded by Steve Shull. Unanimously approved.
4. Approval of the February Virtual Meeting Minutes

Motion by Kyle Heiden, seconded by Miguel Plascencia. Unanimously approved.
5. WG documentation review – patents & copyrights

The chair called the WG to attention about any essential patents and/or copyrights that could be a risk to our work, there was no objections or comments.
6. Review of approved IEEE PAR

The chair explained where we stand on the PAR and mentioned that we are now compliant with the requirement by IEC. We are on track to go to ballot with at least 7 months of reserve time.
7. Review of IEC Maintenance Team Status
  - a) We have the required five countries
8. Document Review
  - a) Known Issues
    - i) Universal Interface Issues
      - a) Connection point TF – Kyle Heiden
      - b) Touch Safe – Pin orientation
      - c) Connection point
      - d) Connection method

## **Distribution Transformers Subcommittee**

### **Task force / Working Group Report**

Kyle presented two SAE documents with the connector specification. The main difference is the front versus rear release. AS34541B and AS 34041B are the referenced documents. Stephen Shull commented that these are referred from an existing connector. His main concern is regarding the depth of the thread. Kyle mentioned that this is using a shell size 22, which has a dimension M quoted at ~0.97 inches. The main issue is that at this point there are no suppliers of this connector. Kyle shared an excerpt of an email with a supplier where they recommend ordering an AEC3102 box mount with Jam nut or AEC3100 wall mount receptacle with jam nut, and that should be sufficient. The main reference should be AS34541B, Steve Shull recommended that we include this in the standard document as a reference to guide the user/supplier on what they need to order. Miguel Plascencia mentioned that his company has issue with cross threading the jam nut due to the very fine threads. There were comments about specifying stainless steel instead to get a higher mechanical strength. Stephen Shull mentioned that there is a lot of difficulties on ordering the right part. Lee Matthews made a mention that currently this is not an enforced requirement, so there might be an issue on sourcing this component. The task force will continue with their work and will come back to the next meeting with more information.

#### 9. Old business

##### a) Ratio all positions – tabled

The Chair mentioned that this topic was tabled at the virtual meeting in February and opened for discussion withing the WG again. Tom Dauzat asked why it was tabled. The Chair explained that the issues were the lack of information and definition of where and how to document this information. There was a request to share an example of Decal with the ratio on all taps. The Chair committed to bringing an example to the next meeting.

#### 10. New business

##### a) Update on section review:

##### i) Section 2 - Kyle Heiden/Guang Yuan/Samragui Datta Roy

##### a) Sam – to review status of documents for next meeting

The team requested more time.

##### ii) Section 6 – Miguel Plascencia

Miguel requested some more time. He believes he is ready but wants to review again

##### iii) Section 9 – Dan Sauer/Rich Frye/Samragui Datta Roy

##### a) Ratio connection section – should we update?

##### b) 50/60 Hz conversion formulas – C57.12.90 Annex?

Dan shared their findings on the section. The main issue brought up is that some outdated methods are still in the standard. It was mentioned that this only follows IEEE C57.12.90. The

## **Distribution Transformers Subcommittee**

### **Task force / Working Group Report**

Chair mentioned that the issue is that more modern methodologies should also be added to this section.

A motion was made to move the existing methodology for ratio measurement to an annex for reference and update the section with more modern methodologies specific for voltage regulators. Moved by Tom Dauzat and Seconded by Miguel Plascencia. Discussion: the WG requested examples of how the measurement would be made and how to validate the measurement. Unanimously approved.

There was also a topic related to whether or not to include sound testing conversion between 50Hz to 60Hz that already exists in IEEE C57.12.90. Juan Castellanos mentioned that the conversion factors were developed using transformers as reference. Juan volunteered to share some information related to this with the WG.

iv) Section 10 – Kyle Heiden/Sebastian Rehkopf/Craig Colopy

a) Kyle to work with Craig on updates from new C57.131

No changes noted

v) Section 11 – Steve Shull

a) More to come – based on new TF

Still working on this

vi) Annexes – Craig Colopy/Lee Matthews

a) Annex C – Wording to include from June 2024 meeting

- (1) Note: The closed loop circuit the series transformer of Figure C.5 is shown in is floating. If implementing this circuit in a specific design, manufacturers have various means to remedy this condition.

This was agreed on the previous virtual meeting and will be added to the draft.

b) Review updated prints for figures in annex C

Dan shared the diagrams he came up with and a request for some changes were made by the WG. Dan will update the drawings and share them again. There was also a request for the PR to be shown in the diagram.

#### 11. Future meetings

Thursday, March 27<sup>th</sup>, Granite 3, Hyatt Regency, Denver, CO

## **Distribution Transformers Subcommittee**

### **Task force / Working Group Report**

Possible virtual meeting – June 2025

IEC TC14 / IEC General Meeting – possible WG meeting – New Dehli – India & virtual – September 2025

IEEE C57 Fall 2025 Meeting – Bonita Springs, FL

Volunteers to host other meetings / times / places?

#### 12. Closing of Meeting

Motion to adjourn the meeting by Kyle and seconded by Samragui

Submitted by: Nabi Almeida

Date: March 25, 2025

18 Members in attendance:

First Name	Last Name
Rehan	Ali
Robert	Allison
Nabi	Almeida
Samragui	Dutta Roy
Thomas	Dauzat
Juan	Gonzalo Castellanos Gonzales
Ramadan	Issack
Alex	Macias
Lee	Matthews
Miguel	Plascencia
Ion	Radu
Sebastian	Rehkopf
David	Rohrer
Dan	Sauer
Stephen	Shull
Christopher	Slattery

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Jimmy	Smith
Wilson	Tranum

19 Guests in attendance:

First Name	Last Name
Prudhvi Anand	Bhattiprolly
Craig	Colopy
John	Crutty
Scott	Digby
Fernando	Duarte
James	Gardner
Vijay	Gunja
Mick	Kasonga
Evan	Knapp
Nihat	Kosedagi
Justin	Minikel
Thomas	Propts
Martin	Rave
Eric	Schleismann
Joe	Schumack
Chris	Steineman
Tim	Tillery
Reinaldo	Valentin
Jeremy	Van Horn

Minutes from the working group meeting March 27, 2025, at 1:00 PM MDT with 15 in attendance.

1. Opening of meeting and introductions

The chairman called the meeting to order at 1:00 pm.

## **Distribution Transformers Subcommittee**

### **Task force / Working Group Report**

2. Record attendance

A quorum check was performed, and quorum was not achieved, only 12 members out of 27 members were present.

3. Approval of agenda

No quorum, so it is not possible to approve.

4. Approval of the Monday minutes

No quorum, so it is not possible to approve.

5. WG documentation review – patents & copyrights

Patent Slides were displayed. No patents claims were brought up by the attendees. The IEEE Copyright Policy and Code of Behavior were displayed.

6. Discussion

There was discussion on the location for the entry of the universal control cable into the control enclosure. The consensus was for the entry to be at the bottom of the enclosure. No motion was made due to lack of a quorum.

There was discussion on adding handles or lifting devices to the control enclosure. The consensus was that this should be an accessory when specified. No motion was made due to lack of a quorum.

There was discussion on how to best provide the ratio information at each tap. The consensus was that the method to provide the information should be added as an informative annex and provided when specified by the customer. If a decal or drawing is used, the part number of the decal or drawing should somehow be referenced on the nameplate. No motion was made due to lack of a quorum.

There was discussion on how to perform sound tests at 50 Hz or correct the measured values if the sound test was performed at 60 Hz. No motion was made due to lack of a quorum.

There will be a meeting in Bonita Springs, FL during the Fall 2025 Transformers Committee Meetings.

A virtual meeting may be held prior to the Fall Transformers Committee meeting. A possible time for the virtual meeting is in late May or early June.

7. Future meetings

a) Possible virtual meeting in June 2025



## **Distribution Transformers Subcommittee**

### **Task force / Working Group Report**

b) IEC TC14 / IEC General Meeting – possible WG meeting – New Dehli – India & virtual – September 2025

c) IEEE C57 Fall 2025 Meeting – Bonita Springs, FL

#### 8. Closing of Meeting

The meeting was adjourned at 2:40 pm.

Submitted by: Lee Matthews

Date: March 28, 2025

12 Members present:

First Name	Last Name
Rehan	Ali
Robert	Allison
Samragui	Dutta Roy
Thomas	Dauzat
Juan	Gonzalo Castellanos Gonzales
Lee	Matthews
Miguel	Plascencia
Dan	Sauer
Stephen	Shull
Christopher	Slattery
Jimmy	Smith
Wilson	Tranum

3 Guests present:

First Name	Last Name
Evan	Knapp
Thomas	Propts
Tim	Tillery

**PC57.15.01 – Pad-Mounted Compartmental-Type Step-Voltage Regulators – Kyle Heiden**

Kyle Heiden presented the following minutes from the working group meeting March 25, 2025, at 7:00 AM MDT with 20 in attendance.

- 1) Welcome and Chair's Remarks
- 2) Circulation of Attendance Sheets
  - a. A total of 17 attendees were present in person, with three additional attendees joining via Teams. 15 attendees requested membership, which was granted due to this being the first WG meeting. Therefore, a total count is as follows:
    - i. 15 Members
    - ii. 5 Guests
- 3) Presentation and approval of meeting Agenda (motion by Dan Sauer / Seconded by Steve Schull) – approved without opposition.
- 4) Reviewed Approved PAR with WG – Kyle Heiden
- 5) New Business
  - a. Call for volunteers for WG leadership:
    - i. Vice Chair: Samraghi Dutta Roy
    - ii. Secretary: Miguel Plascencia
  - b. Reviewed initial document outline. Current outline is as follows:
    - i. 1 – Overview
    - ii. 2 – Normative References
    - iii. 3 – Definitions
    - iv. 4 – Ratings (including BIL ratings)
    - v. 5 – Tests
    - vi. 6 – Service Conditions
    - vii. 7 – Construction
    - viii. 8 – Installation
    - ix. 9 – Accessories
    - x. 10 – Other Requirements
  - c. Divide up and assign section to WG members
    - i. Request for volunteers will be sent via email after the meeting
- 6) New Business for next WG meeting:
  - a. Review section assignments and discuss additional sub-section content
- 7) Action – Kyle Heiden to coordinate next WG meeting for May 2025 (virtual)
- 8) Motion to Adjourn (motion by Steve Shull / Seconded by Dan Sauer) – approved without opposition.

Submitted by: Kyle Heiden

Date: March 26, 2025

Attendance:

Last Name	First Name	Affiliation
Almeida	Nabi	Prolec GE
Smith	Jimmy	Howard Industries
Matthews	Lee	Howard Industries
Minikel	Justin	Eaton
Sauer	Daniel	Eaton
Tillery	Timothy	Howard Industries
Colopy	Craig	Retired from EATON
Schindler	Stefan	Maschinenfabrik Reinhausen
Shull	Stephen	BBC Electrical Services LLC
Ali	Rehan	Siemens Energy, Inc.
Jarosz	Patrycja	IEEE SA
Tranum	Wilson	Siemens-Energy
Plascencia	Miguel	PG&E
Dutta Roy	Samraghi	Siemens Energy Inc
Slattery	Christopher	FirstEnergy
Issack	Ramadan	AEP
Knapp	Evan	Eaton
Heiden	Kyle	Eaton

**██████ P3467.5 – Supply Chain and Asset Traceability for Energy (SCATE) – Energy Transformation Devices – Alicia Farag**

Jerry Murphy and Steve Shull presented the following minutes from the working group meeting March 25, 2025, at 9:30 AM MDT with 56 in attendance.

1. Chair called the meeting to order at 9:30 am MDT. Paper rosters were circulated to record attendance.
2. Chair called for identification of essential patents pertaining to the work of this TF. None brought forward. Copyright policy and participant behavior slides were presented.
3. Total attendance was 56 with 49 members and 7 guests. Those requesting membership were granted membership.
4. Meeting content
  - a. Presented an overview of P3476 core reference standard
  - b. Presented the working version of the transformer data model
  - c. Agreed to review the in-scope asset subtypes and update as needed
5. Next meeting will be a virtual meeting with the date to be determined.

6. Meeting adjourned at 10:45am MDT.

Submitted by: Alan Traut, Secretary

Date: 03/25/2025

Attendance:

Name	Affiliation	Role	Name	Affiliation	Role
Nabi Almeida	Prolec GE	Member	Jerry Murphy	Chen Moore and Associates	Member
Alex Ayala	ERMCO	Member	Joel Pacas	IFD Technologies	Member
Jared Bates	Oncor Electric Delivery	Member	Dwight Parkinson	Eaton Corp	Member
Prudhvi Bhattachiprolu	AES	Member	Vinay Patel	Con Edison of NY	Member
Kevin Biggle	Weidmann	Member	Miguel Plasencia	PG&E	Member
Jason Bravoin	Weidmann	Member	Nicholas Post	WEC Energy Group	Member
Darren Brown	Howard Industries	Member	Martin Rave	IFD Technologies	Member
Thomas Callsen	Weldy Lamont Assoc.	Member	Robert Reepe	Georgia Power	Guest
Noah Chesser	Oncor Electric Delivery	Member	Mason Rush	Central Moloney	Member
Brian Conneighon	Cleveland Cliffs	Guest	Joe Schumack	Ameren	Guest
John Crofty	Ameren	Member	Ewald Schweiger	Siemens Energy	Member
Thomas Dazat	AEP - SWEPCO	Member	Stephen Shull	BBC Electrical Services, Inc.	Member
Fernando Duarte	Hitachi Energy	Member	Jim Spaulding	City of Fort Collins	Member
Alicia Farag	Locusview	Chair	Joseph Tedesco	Hitachi Energy	Member
Sanford Fong	Georgia Power	Member	Tim Tillery	Howard Industries	Guest
Vazmin Galindo	Quality Switch	Member	Alan Traut	Howard Industries	Secretary
Carlos Gaytan	Prolec GE	Member	Steve Tsai	JST Power Equipment	Guest
Brad Greaves	Weidmann Electrical Technology	Member	Reinaldo Valentin	Duke Energy	Member
Ken Hampton	BGE/Exelon	Member	Jeremy Van Horn	IFD Technologies	Member
Ramadan Issack	American Electric Power	Member	John Vartanian	National Grid	Member
Yeounsoo Kim	JST Power Equipment	Member	Aparna Vedantham	Virginia Transformer	Member
Gary King	Consultant	Member	Josh Verdell	ERMCO	Guest
Nicholas Koinis	CenterPoint Energy	Member	Orlando Vrbinez	JST Power	Guest
Andrew Larison	Hitachi Energy	Member	Shelby Walters	Howard Industries	Member
Alejandro Macias	Centerpoint Energy	Member	Bruce Webb	Knoxville Utilities Board	Member
Tim-Felix Mai	Siemens Energy	Member	Stephen Wolbach	Ameren	Member
Nicholas Manske	Oncor Electric Delivery	Member	Jiahao Xie	S&C Electric	Member
Tyler Morgan	Duke Energy	Member	Michael Zarnowski	Carte International Inc.	Member

### **PC57.167 – Guide for Monitoring Distribution Transformers – Gary Hoffman**

This working group did not meet.

### **Task Force on Transformer Efficiency and Loss Evaluation – Phil Hopkinson**

Phil presented the following minutes from the task force meeting March 24, 2025, at 9:30 AM MDT with 146 in attendance.

#### **1. Welcome**

Chair Hopkinson welcomed the attendees.

#### **2. Roster**

146 were in attendance.

#### **3. Approval of Agenda**

Approved.

4. Approval of the Minutes of the Last Meeting – St. Louis
5. Our Agenda for Denver Thoughts on DOE Final Rule

Mr. Hopkinson presented the slides embedded above. He noted that EIA is a component part of the US DOE. In the study EIA did prior to the NOPR they stated 0.2% load growth due to energy efficiency. Since then, EIA has redone their projections twice. The most recent revised the growth rate to 3.75%. DOE wanted to reduce core loss with the final rule. In 2016 they noted 95% of transformers used GOES. Final Rule requires 75% GOES, 25% amorphous steel. Mr. Hopkinson noted final rule 10CFR431 part K is better than the NOPR. (See above presentation Slide page 4)

6. Guest Speaker Peter Ferrell

#### Discussion

Peter Ferrell, Director of Government Relations at NEMA gave the above presentation.

The opportunities are:

- a. Rescind all transformers from future DOE rulemaking.
- b. Extend rulemaking cadence to 12 years (longer runway between rulemakings – 3 presidential terms).
- c. Remove TSL-3 through TSL-5 products from future rulemaking.

NEMA is open to working with interested stakeholders on any next steps.

7. Poll and thoughts

A three-question straw poll was conducted of attendees in the room.

- a. How many disagree with the rule? Very many hands opposed the rule. 1 hand was in support of the rule.
- b. Will weights and costs increase due to the rule? @15 hands raised yes it will. 1 hand raised that weights and costs would decrease with the rule.
- c. Will efficiencies improve with amorphous? No one raised their hand.

#### Q&A

8. Assignments for next meeting
9. Next meeting date and location
10. Adjourn

Submitted by: Paul Orr

Date: 03/25/2025

Meeting Attendance Follows (146 people signed in):

Jerry Allen, Metglas, Inc.  
Javier Arteaga, Hitachi Energy  
Alex Ayala, Power Partners, Inc.  
Donald Ayers, Ayers Transformer Consulting  
Cheryl Basel, WEG Transformers USA Inc.  
Jared Bates, Oncor Electric Delivery  
Andrew Berman, S&C Electric  
Edwin Betancourt, Siemens Energy  
Kevin Biggie, Weidmann Electrical Technology  
David Blew, Retired (PSE&G)  
Dominique Bolliger, HV Technologies  
Jeffrey Britton, Phenix Technologies, Inc.  
Darren Brown, Howard Industries  
Thomas Callsen, Weldy-Lamont Associates  
Deniss Carr, GE Grid Solutions  
Raymond Chapa, WEG Transformers USA Inc.  
Paul Chisholm, IFD Technologies  
Eunyoung Cho, Hico-America  
Stefano Comerio, LTC Group  
Brian Conneighton, Cleveland-Cliffs  
Noah Cresser, Oncor Electric Delivery  
Janet Crockett, Fayetteville PWC  
Tim Dappen, Cargill  
Antonio Di Biase, Tempel  
Jeffrey Door, The H-J Family of Companies  
William Elliott, SWEPCO AEP  
William Ellis, AMEREN  
Fadi Fayad, ASD Inc  
Bruce Forsyth, Cargill  
Kevin Frye, Central Moloney, Inc.  
Renjie Fu, ERMCO/V&F Transformer  
Bob Fyrer, Dupont  
Jose Gamboa, H-J Family of Companies  
Carlos Gaytan, Prolec GE  
Rafael Grajeda, EATON Corporation  
Richard (Luke) Granbois, IFD Technologies  
Kendrick Hamilton,  
Michael Hardin, H-J Family of Companies  
Sergio Hernaidez, Hammond Power Solutions  
Giovanni Hernandez, Virginia Transformer  
Jean Hernandez, Georgia Tec NEETRAC  
John Herron, Raytech USA  
John Hipchen, Copper Development Assn.  
Thomas Holifield, Howard Industries  
Philip Hopkinson, HVOLT Inc.  
Mohammad Iman, MGM Transformer Company  
Jose Izquierdo, Siemens-Energy  
Karl Jakob, Cargill  
Sheldon Kennedy, Sheldon P. Kennedy Engineering LLC  
Vladimir Khalin, K V Consulting  
Qasim Khan, NEETRAC - Georgia Tech

Brian Klaponski, Carte International Inc.  
 Ken Klein, Johnson Coil  
 Gillbert Kozer, Northeast Transformer  
 Patrick Kozer, Northeast Transformer  
 Jason Lambert, JST Power  
 Andrew Larison, Hitachi Energy  
 Andrew Lawless, Potencia Partners  
 Moonhee Lee, Hammond Power Solutions  
 Aleksandr Levin, Weidmann Electrical Technology  
 Jacky Lin, Fortune Electric  
 Parry Lively, Tempel  
 Colby Lovins, Federal Pacific  
 Mark Lowther, Kruger Products Inc  
 Marilia Machado Riberio, GE  
 Alejandro Macias, Center Point Energy  
 Kushal Mahajan, EATON Corporation  
 Tim-Felix Mai, Siemens Energy  
 Jinesh Malde, M & I Materials  
 Swapnil Marathe, Megger  
 Bryan Marquardt, Cleveland-Cliffs  
 Daniel Martinez, JFE Shoji Power Canada  
 Jim McBride, JMX High Voltage  
 Joseph McBride, JMX High Voltage  
 Ken McKinney, UL Solutions  
 Tim Menter, Lincoln Electric System  
 Fernando Meza, Power Partners, Inc.  
 Rhea Montpool, Schneider Electric  
 Elena Morales, Siemens Energy  
 Andre Moreno, Siemens Energy  
 Hugo Murillo, The H-J Family of Companies  
 Jerry Murphy, Chen Moore & Associates  
 Ismael Naja, EATON Corporation  
 Aniruddha Narawane, EATON Corporation  
 Shawn Nun, Hitachi Energy  
 Tommy Nunn, JST Power  
 Steven Oakes, WEG Transformers USA Inc.  
 Austin Ortega, Siemens-Energy  
 Dwight Parkinson, EATON Corporation  
 George Partyka, PTI Transformers  
 George Payerle, Carte International Inc.  
 Harry Pepe, Phenix Technologies, Inc.  
 Jason Perkins, Moehn Electrical Sales  
 Daniel Posadas, Prolec S. A.  
 Jarrod Prince, ERMCO  
 Ion Radu, Hitachi Energy  
 Adnan Rashid, Measurement Canada / ISED  
 Tony Roiss, Custom Materials Inc  
 Mason Rush, Central Moloney, Inc.  
 Fernando Salinas, Power Partners, Inc.  
 Alberto Sandoval, EATON Corporation  
 Jaber Shalabi, VanTran  
 Michael Shannon, Rea Magnet Wire  
 Masoud Sharifi, Siemens Gamesa  
 Shihey Xras Shen, GE Grid Solutions  
 Stephen Shull, BBC Electrical Services, Inc.  
 Chris Slattery, First Energy

Jimmy Smith, Howard Industries  
Steven Snyder, Hitachi Energy  
Muhammad Abdullah Sohail, Trench Canada  
Brian Sonnenberg, General Electric  
Jim Spaulding, City of Fort Collins  
Mike Spurlock, Spurlock Engineering Services, LLC  
Stefan Srebert, Brockhaus  
David Stankes, 3M  
Kerwin Streich, Siemens Energy  
Dragan Tabakovic, Hubbell Power  
Chris Talbert, JST Power  
Erik Tarengo, ULSUN Electric  
Val Tatu, Powersmitus  
Joseph Tedesco, Hitachi Energy  
Vijay Tendulkar, EATON Corporation  
Michael Thibault, Pacific Gas & Electric  
Andreas Thiede, Highvolt  
Ryan Thompson, Burns & McDonnell  
Tim Tillery, Howard Industries  
Fernando Tirado, Prolec GE  
Alan Traut, Howard Industries  
Jeremy Van Horn, IFD Technologies  
John Vartanian, National Grid  
Pragnesh Vyas, Sunbelt Soloman  
David Walker, MGM Transformer Company  
David Wallach, Duke Energy  
Shelby Walters, Howard Industries  
Bruce Webb, Knoxville Utilities Board  
Zachery Weiss, WEG Transformers USA Inc.  
Michael Wheeler, Hitachi Energy  
Joe White, Power Engineers  
Devora Wiesel, Con Edison  
Guang Yuan, Hitachi Energy  
Michael Zarnowski, Carte International Inc.  
Martin Rave, IFD Technologies

### Task Force Tank Touch Temperature – Bruce Webb

Bruce Webb presented the following minutes from the working group meeting March 24, 2025, at 11:00 AM MDT with 65 in attendance.

1. Call to Order  
The meeting was called to order by the Chair (Bruce Webb) Monday March 24, 2025, at 11:00 AM.
2. Welcome and Introduction  
The Chair identified the meeting topic and welcomed the attendees.
3. Attendance and Contact Sheets  
The Chair distributed attendance sheets and requested that new attendees provide clear and legible email addresses to address the ongoing 123Signup platform issues.
4. Participant Behavior  
The Chair displayed several slides identifying the IEEE Codes of Ethics & Conduct expectations and specifically asked the attendees to maintain responsible behavior during



the meeting, to treat one another nicely and with respect, and to avoid injuring others reputation or employment. There was no opposition to the requirements or request.

5. Essential Patent Claims

There was a call for essential patent(s) by the Chair. There were none brought forward. The Chair announced if there was one to let the Chair/Secretary or Vice Chair know. The IEEE essential patent claim slides and guidelines were shown to the TF attendees, and this was recorded by the Secretary.

6. Copyright Policy

The IEEE copyright slides and guidelines were shown to the TF attendees without further discussion, and this was recorded by the Secretary.

7. Quorum Check

As this was a Task Force effort the Chair was directed by SA that no quorum check was necessary.

8. Approval of Agenda

Advance notice of the agenda was emailed to Members prior to the meeting and presented during the meeting for Member consideration. As this was a Task Force effort the Chair was directed by SA that no quorum check was necessary.

9. Approval of Past Minutes

Advance notice of the past unapproved draft minutes was emailed to Members prior to the meeting and presented during the meeting for Member consideration. As this was a Task Force effort the Chair was directed by SA that no quorum check was necessary.

11. Review of TF Directive

To keep the TF meeting on track, Members and Guests were reminded of our Directive from the SC:

- a. ‘... the Task Force is to further investigate perceived safety concerns regarding tank touch temperatures for transformers that are accessible to the public by...
- b. exploring input and feedback from outside resources and experts,
- c. evaluating opportunities to specifically address such concerns, and
- d. making recommendations to the SC for next steps, if any.’

12. Open Discussion

A brief historical timeline was furnished by the Chair beginning with the TF’s Kansas City meeting until present concluding with the understood need for a white paper publication of the TF findings.

Both the January 22, 2024 Final TF SC report and the requested SA DRAFT white paper were discussed.

After a robust discussion, it was determined and agreed upon that no white paper would be necessary and that a revised report combining the January report and DRAFT white paper should be created for submission to the Distribution Transformer SC.

13. New Business

There was no new business.

14. Next Steps

The Chair resolved to create a TF report that would be made available to the SC before the F25 meeting.

The process to create the report would be to create a draft, have it reviewed and vetted by seven (7) TF Members (Dan Mulkey, Ryan Hogg, Jeremy Van Horn, Jim Spaulding, Jean Hernandez-Mejia, and John Vartanian), and later issued to the TF Members for their consideration via email requesting: (1) approval, (2) disapproval with comment, or abstention.

The Chair is resolved to gain majority approval for the report prior to August 2025, issue the report to the Distribution Transformer SC chair by September 2025, and to follow up officially with the SC at the F25 meeting in Bonita Springs, Florida.

15. Next meeting--date and location

There will be no additional meetings following the submission of the revised TF report to the Distribution Transformer SC.

16. Adjournment

The meeting was adjourned by the Chair at 11:40 AM.

Submitted by: Bruce Webb

Date: March 26, 2025

Attendance:

	Last Name	First (Given) Name	Company (Affiliation)
1	Allen	Jerry	Metglas
2	Arias-Garcia	Josh	Midwest Electrical TX Services
3	Attaguile	Sam	3M
4	Ayala	Alex	Power Partners
5	Brown	Darren	Howard Industries
6	Callsen	Thomas	Weldy Lamont
7	Carrizales	Juan Alredo	Prolect GE
8	Chisholm	Paul	IFD Technologies
9	Connelighton	Brian	Cleveland Cliffs
10	Crockett	Janet	Fayetteville PWC
11	Crotty	John	Ameren
12	Doerr	Ronny	SGB-SMIT GROUP
13	Gardner	James	Prolec-GE Waukesha
14	Grandbois	Richard(Luke)	IFD Technologies
15	Greenhaw	Matthew	OG&E
16	Hernandez-Mejia	Jean	GT-NEETRAC
17	Hershberger	Ben	Midwest Electrical TX Services
18	Hogg	Ryan	Bureau of Reclamation
19	Hsiao	YuTso "Allen"	Shihlin Electric
20	Jang	Donghyun	LS Electric
21	Jarosz	Patrycja	IEEE-SA
22	Kim	Heonsu	LS Electric
23	King	Gary	Consultant
24	Kozer	Patrick	Northeast Transformer
25	Kurz	Andreas	Maschinenfabrik Reinhausen
26	Larison	Andrew	Hitachi Energy
27	Leal	Fernando	Prolec Energy
28	McKinney	Ken	VL Solutions
29	Minikel	Justin	Eaton
30	Morgan`	Tyler	Duke Energy
31	Murphy	Jerry	Chen Moore & Associates
32	Pacas	Joel	IFD Technologies
33	Park	Dean	Hyosung HICO
34	Park	Jaeyong	LS Electric

35	Panesar	Parminder	Virginia Transformer Corporation
36	Parkinson	Dwight	Eaton
37	Payerle	George	Carte International Inc.
38	Peuc	Luka	Koncar D&ST
39	Plascencia	Miguel	PG&E
40	Rapelly	Laxman	Georgia Transformer
41	Rave	Martin	IFD Technologies
42	Reepe	Robert	GA Power Co.
43	Rehan	Ali	Siemens Energy, Inc.
44	Rush	Mason	Central Moloney Inc.
45	Sanchez Rodriguez	Jesus	Vertir
46	Santos	Armindo	Prolect GE
47	Sbravati	Alan	Hitachi Energy
48	Schumack	Joe	Ameren
49	Smith	Ed	The H-J Family of Companies
50	Stankes	Dave	3M
51	Syed	Ali	ComEd
52	Thibault	Mike	PG&E
53	Tillery	Tim	Howard Industries
54	Tsai	Steve	JST Power Equipment
55	Valentin	Reinaldo	Duke Energy
56	Varghese	Ajith	Prolec Waukesha
57	Veeran	Kannan	Georgia Transformer
58	Viereck	Kirsten	Maschinenfabrik Reinhausen
59	Vyas	Pragnesh	Cleveland Cliffs
60	Watson	Joshua	NPPD
61	Webb	Bruce	KUB
62	White	Joe	Power Engineers
63	Wolbach	Stephen	Alabama Power
64	Yeh	Tzu Han "Stanely"	Shihlin Electric
65	Yu	Zachary	Selyuan Toshiba

### C.3 Old Business

No old business was discussed.

### C.4 New Business

Alan Traut brought a motion to go to ballot for C57.12.37. This motion was unanimously approved.

The Chair announced C57.12.38 single phase pads was published.

The Chair announced C57.12.36 distribution substation transformers succeeded in making it through ballot.

## **C.5 Chairman's Closing Remarks and Announcements**

The Chair had no closing comments to the SC.

## **C.6 Adjournment**

The Chair adjourned the meeting as provided in the meeting agenda at 10:45AM.

List of Attendees and Affiliations:

<b>Last Name</b>	<b>First Name</b>	<b>Company / Affiliation</b>	<b>Role/Status</b>
Abdalla	Isaac	HICO America	Guest
Adams	Kayland	Prolec-GE Waukesha	Guest
Ali	Rehan	Siemens Energy, Inc.	Guest
Almeida	Nabi	Prolec GE	Member
Alonso	Mario	Georgia Transformer	Member
Amin	Mihirkumar	Eaton	Requesting Membership
Arteaga	Javier	Hitachi Energy	Member
Ayala	Alex	Ermco	Requesting Membership
Bargone	Gilles	FISO	Guest
Bates	Jared	Oncor Electric Delivery	Member
Berube	Jean-Noel	Rugged Monitoring Quebec Inc	Guest
Bhattiprolu	Prudhvi Anand	AES	Guest
Biggie	Kevin	Weidmann Electrical Technology	Member
Blaszczyk	Piotr	Specialty Transformer Company	Member
Bradshaw	Garrett	Howard Industries, Inc.	Requesting Membership
Brown	Christopher	San Diego Gas and Electric	Guest
Cai	Jim	JSHP Transformers	Guest
Carrizales	Alfredo	PROLEC	Guest
Castro	Fidel	San Diego Gas & Electric	Requesting Membership
Chesser	Noah	Oncor Electric Delivery	Member
Colopy	Craig	Retired from EATON	Member
Conneighton	Brian	Cleveland-Cliffs	Guest
Crockett	Janet	Fayetteville PWC	Guest
Crotty	John	Ameren	Member
Da Silva	Roberto	Maschinenfabrik Reinhausen	Guest
Dappen	Tim	Cargill	Requesting Membership
Dauzat	Thomas	AEP-SWEPCO	Member
de Oliveira	Luiz	Hitachi Energy	Requesting Membership

## Annex C

Duarte	Fernando	Hitachi Energy	Requesting Membership
Dulac	Hakim	Advanced Power Technologies	Member
Dutta Roy	Samragani	Siemens Energy Inc	Member
Espindola	Marco	Hitachi Energy	Guest
Fausch	Reto	RF Solutions	Guest
Fernandez	Miguel	Braintree Electric	Requesting Membership
Ferreira	Marcos	FEMA	Member
Flores	Hugo	Ermco	Guest
Fujimori	Alan	Romagnole	Guest
Garcia	Miguel	Hitachi energy	Member
Gardner	James	Prolec-GE Waukesha	Member
Garza	Gilberto	Prolec GE	Requesting Membership
Gaytan	Carlos	Prole GE	Member
Ghosh	Rob	GE Vernova	Member
Gorzin	Alireza	Black & Veatch	Requesting Membership
Grandbois	Luke	IFD Technologies	Guest
Greaves	Brad	Weidmann Electrical Technology, Inc	Guest
Greenhaw	Matthew	OG&E	Guest
Guinand	Benjamin	Power Magnetics	Guest
Gunja	Vijay	Powertechlabs	Requesting Membership
Hamilton	Kendrick	ERMCO	Member
Hampton	Ken	BGE	Member
Heiden	Kyle	Eaton	Member
Hemchandra	Shertukde	UHART/DDI	Member
Hernandez-Mejia	JeanCarlos	NEETRAC GEORGIA TECH	Guest
Hoffman	Saramma	PPL	Member
Hogg	Ryan	Bureau of Reclamation	Guest
Holifield	Thomas	Howard Industries Inc	Guest
Hopkinson	Phil	HVOLT.com	Member
HSIAO	ALLEN	Shihlin Electric	Guest
Issack	Ramadan	AEP	Member
Izquierdo	Jose	Siemens energy	Requesting Membership
Janakiraman	Balaji	Virginia Transformer	Guest
Jarosz	Patrycja	IEEE SA	Guest
Joe	White	POWER Engineering	Guest
John	John	Virginia Transformer Corp.	Member
Kennedy	Sheldon	Sheldon P Kennedy Engineering	Guest
Khan	Qasim	Neetrac- Georgia Tech	Requesting Membership
Kim	Yeounsoo	JST powe Equipment	Requesting Membership
King	Gary	Consultant	Member

## Annex C

Klaponski	Adam	Carte International inc	Guest
Klaponski	Brian	Carte International Inc	Member
Koinis	Nicholas	Cebterpoint energy	Guest
Kosedagi	Nihat	ERMCO	Requesting Membership
Kowalski	Rafal	Hitachi Energy	Guest
Kumar	Arvind	Delta star inc	Requesting Membership
Kwan	Landen	NRC	Guest
Lapointe	Sylvain	Rugged Monitoring	Guest
Larison	Andrew	Hitachi Energy	Member
Leal	Fernando	Prolec ge	Guest
Lee	Moonhee	Hammond Power Solutions	Member
Levin	Aleksandr	Weidmann Electrical Technology	Guest
Li	Weijun	Braintree Electric Light Department	Member
lively	Parry	Tempel	Requesting Membership
Lopes	Ricardo	Efacec	Guest
Macias	Alejandro	CenterPoint Energy	Member
Mai	Tim-Felix	Siemens Energy	Member
Manske	Nicholas	Oncor Electric Delivery	Requesting Membership
Masoud	Nader	Central Moloney	Requesting Membership
Matthews	Lee	Howard Industries	Member
Melle	Thomas	HIGHVOLT	Requesting Membership
Mellin	Toni	Vaisala	Guest
Merrill	Logan	OMICRON	Guest
Minikel	Justin	Eaton	Guest
Murcia	Fredy	Siemens Energy	Guest
Murillo	Hugo	There H-J Family of Companies	Requesting Membership
Murphy	Jerry	Chen Moore & Associates	Member
Naderian	Alireza	Potencia Partners	Guest
Narawane	Aniruddha	Eaton	Member
Neild	Kris	Megger	Guest
Panesar	Parminder	Virginia Transformer Corp	Requesting Membership
Parkinson	Dwight	Eaton Corp	Member
Patel	Vinay	Con Edison	Member
Payerle	George	Carte International	Member
Pepe	Harry	Phenix Technologies	Guest
Peuc	Luka	Končar D&ST	Guest
Plascencia	Miguel	Pacific Gas & Electric	Requesting Membership
Post	Nicholas	WEC Energy Group	Guest
Radu	Ion	Hitachi Energy	Member
Rave	Martin	IFD Technologies	Member

## Annex C

Ray	Sheila	US Nuclear Regulatory Commission	Guest
Reepe	Robert	Georgia Power Co	Member
Rodriguez	Juan	Magnetron	Guest
Ronchi	Rodrigo	WEG Transformers México	Member
Sauer	Daniel	Eaton	Member
Sbravati	Alan	Hitachi Energy	Guest
Schleismann	Eric	Southern Company	Guest
Schleismann	Eric	Southern Company	Member
Schumack	Joseph	Ameren	Guest
Sethi	Kabir	Hitachi Energy Germany Ag	Guest
Sewell	Jeremy	Quality Switch, Inc.	Guest
Sharpless	Samuel	Rimkus	Guest
Shull	Stephen	BBC Electrical Services, LLC	Member
Sinclair	Jonathan	Black and Veatch	Guest
Slattery	Christopher	FirstEnergy	Guest
Smith	Jimmy	Howard Industries	Guest
Snyder	Steven	Hitachi Energy	Member
Sohail	Muhammad Abdullah	Trench Limited	Requesting Membership
Stank	Markus	MR	Member
Stankes	David	3M	Guest
Tarango	Erik	Olsun electric	Guest
Tatu	Val	Powersmiths	Member
Taylor	Marc	JFE Shoji Power Canada	Guest
thibault	mike	pacific gas and electric	Member
Thiede	Andreas	HIGHVOLT Dresden	Guest
Tillery	Timothy	Howard Industries	Member
Tirado	Fernando	Prolec GE	Requesting Membership
Traut	Alan	Howard industries	Member
Vartanian	John	National grid	Member
Velasquez	Juan	Magnetron sas	Requesting Membership
Verdell	Joshua	ERMCO	Member
Villa	Hector	Ecuatran SA	Guest
Vyas	Pragnesh	Cleveland Cliffs	Member
Washburn	Alan	Burns & McDonnell	Guest
Watson	Joshua	NPPD	Guest
Webb	Bruce	Knoxville Utilities Board	Member
Weiss	Zachery	WEG	Member
Weyandt	Paul	Schneider Electric	Requesting Membership
Will	Elliott	AEP SWEPCO	Guest
Wolbach	Stephen	Alabama Power Company	Guest



## Annex C

Xie	Jiahao	S&C Electric Company	Guest
Yeh	Stanley	Shihlin electric	Guest
Yuan	Guang ( Grace)	Hitachi Energy	Member
Yun	Joshua	Virginia Transformer Corp	Member
Zarnowski	Michael	Carte	Member