# Instrument Transformer Subcommittee

**Document #:**

**Document Title:** **Instrument Transformer Subcommittee**

| | | | |
|---|---|---|---|
| **Chair:** | **David Wallace** | **Vice-Chair** | **Igor Ziger** |
| **Secretary** | **Dennis Carr** | **Percent Complete** | **N/A** |

**Current Draft Being Worked On:** **N/A** **Dated:** 10/22/2025.

**PAR Expiration Date:** **-**

**Meeting Date:** **10/22/2025** **Time:** **8:00 am**

**Location:** **Bonita Springs**

| | | |
|---|---|---|
| **Attendance:** | **Members** | **32** |
| | **Guests** | **33** |
| | **Guests Requesting Membership** | **13** |
| | **Total*** | **65** |

*** Attendance list for this meeting is shown at end of meeting minutes**

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**Meeting Minutes / Significant Issues / Comments:**

Meeting was called to order at 8:00 am, 10/22/2025.

1. Administrative
    a. IEEE Patent Policy and Call for Patents
        i. No comments from group.
    b. IEEE SA Copyright Policy
        i. No comments from group.
    c. Review of agenda
        i. No comments from group.
    d. Introductions of the attendees
        i. QR code for attendance recording was displayed
    e. Updated membership review and count for quorum
        i. 32 members were present. Quorum was obtained
        ii. 13 attendees requested membership.
    f. Rudy Ogajanov motioned for approval of agenda, Barrett Wimberly seconded. No objections noted, motion passed.
    g. Stephen Oakes motioned for approval of minutes, Scott McCloskey seconded. No objections noted, motion passed.

## 2. Old Business

None

## 3. New Business

**Entity PAR P0265 Guide for Online Evaluation of Metrological Performance of Voltage Transformers**

The contents and the intent of the document were presented by D. Wallace

There was a brief discussion on the topic with the main points highlighted below.

a. T. Sizemore asked if this would be better suited for a “white paper” than a standard and felt the content is not mature enough to be a guide
b. R. Hogg brought to the attention that there is a similar effort for CTs within the US because of NERC requirements. He felt it was not the right time to put either into a guide, rather a paper would be preferrable
c. J. Britton confirmed that the document was shown within the PSIM and that it was unclear whether the proposal pertains to IVTs, CCVTs or both. Generally, he felt it didn’t make sense since IVT’s are very reliable with the exception for CCVTs where a failure of a small number of capacitive elements can lead to a shift in voltage that is long lasting and detectable
d. Z. Roman commented that an entity PAR allows only certain companies to participate, and that we will have reduced input on what goes into the document. He brought up that there is a CIGRE WG that is working on online monitoring, perhaps that group will be interested.
e. P. Jarosz commented that entity PAR rule has changed and that you can “passively” participate if you state your affiliation. However, if you wish to speak, you need approval from the WG chair
f. D. Robalino suggested to have someone supervise the work in the entity PAR
g. P. Zhao explained that the methodology is not new and is valuable. He felt that a paper is more appropriate than a guide

In the end, the conclusion was to get more information on the work being done, and what the scope actually is (VTs or CCVTs). It was a consensus that the group does not wish to bring this in as a guide within the ITSC

**Entity PAR P0269 2. Guide for Online Monitoring of Oil Level in Inverted Oil-Immersed Current Transformers**

The contents and the intent of the document were presented by D. Wallace
There was a brief discussion on the topic with the main points highlighted below.

a. D. Wallace felt that it is better suited for power transformers, where the document will be circulated as well
b. P. Zhao added that it is a good practice that can be used by the utilities but not enough to be a standalone guide or standard
c. D. Robalino also stated that this can be a part of a document, not a guide
d. R. Hogg added that it can be incorporated into future guides for IT, not be a standalone document.

In the end, the decision was not to bring this in as a new work item within the ITSC

**Corrigendum for IEC/IEEE 63253-571-8**

This topic was brought up again with the main motivator explained by Z. Roman which is the closing of JWG 56 in the IEC meeting in Belo Horizonte, which the USNC opposed as the SSVT internal arc clause was not resolved.
IEC pointed out that an official statement by the IEEE should be made to close this topic.
A brief review of the available documents was made, and it was concluded that the text was in its original form in the CDV, but was changed for the FDIS / published document. No specific comments could be found on the spot to support why the change was made.
It was agreed that this needs to be checked thoroughly
A motion was made by Z. Roman and seconded by H. Dinh to formally start a TF which will review all the data and create a response to present to IEC. The motion passed unanimously. Volunteers were invited to sign up to the TF immediately after the meeting.

**Working Group Reports** were presented.

**Resolution of the remaining comments for Instrument TF Accuracy**
The quorum was obtained with 28 members present
The remaining comments were addressed and are recorded in the TF Accuracy minutesIn the end the proposal was to update the requirements based on the discussion, put them in D3 and comment on them in the next meeting

Next meeting: Ft. Worth, TX Spring 2025 meeting

4. Close of meeting
    a. Frank Neder Motioned to adjourn, D. Crockett seconded. No objections
    b. Meeting adjourned at 9:15 am.

Submitted by: Dennis Carr
Date: 22.10.2025.

Attendance

| First name | Last name | Affiliation | Role in the TF | Requested membership |
|---|---|---|---|---|
| Ryan | Alkire | GE Vernova | Guest | Yes |
| Seetaram | Alwala | Kiewit | Guest | No |
| Stephen | Ashcraft | Hitachi Energy | Member | |
| Deniss | Carr | GE Vernova | Member | |
| Jaroslaw | Chorzepa | ABB Inc. | Member | |
| Dan | Crockett | Ameren | Guest | No |
| Huan | Dinh | Hitachi Energy USA | Member | |
| Richard | Erwin | Hitachi Energy | Member | |
| Eric | Euvrard | RHM International | Guest | No |
| Rob | Ghosh | GE Vernova | Member | |
| Christopher | Gunter | Siemens Energy, Inc | Guest | No |
| Corey | Hanson | Flex-Core | Guest | |
| Ryan | Hogg | Bureau of Reclamation | Guest | No |

# Instrument Transformer Subcommittee

**Document #:**

**Document Title:** **Instrument Transformer Subcommittee**

| | | | | |
|---|---|---|---|---|
| Thomas | Keels | kEElectric Engineering, PLLC | Guest | Yes |
| Marek | Kornowski | Polycast | Guest | Yes |
| Luka | Kovacic | Koncar Instrument Transformers Inc. | Guest | Yes |
| Scott | Lochridge | ERMCO | Guest | No |
| Jim | McBride | JMX High Voltage | Guest | No |
| Scott | McCloskey | Amran | Member | |
| Robert | Middleton | RHM International | Member | |
| Augusto | Morando | Pfiffner | Guest | Yes |
| Hossein | Nabi Bidhendi | ITEC | Guest | Yes |
| Frank | Neder | Trench Group | Member | Yes |
| Rudolf | Ogajanov | Hitachi Energy | Member | |
| Jonas | Oliveira | Hitachi Energy | Member | |
| Caroline | Peterson | Xcel Energy | Member | |
| Thomas | Propts | Dominion Energy | Guest | No |
| Crystal | Qiao | Trench group | Guest | Yes |
| Ernesto | Ramirez | Arteche | Guest | Yes |
| Marilia | Ribeiro | GE Vernova | Member | |
| Zoltan | Roman | GE Vernova | Chair | |
| Andre | Rottenbacher | Ritz | Member | |
| Garret | Sarkinen | Xcel energy | Member | |
| Nithin | Satheesh | Trench Limited | Guest | Yes |
| Brya | Shang | ABB | Guest | Yes |
| Michael | Shannon | Rea Magnet Wire | Guest | Yes |
| Devki | Sharma | Retired | Guest | No |
| Thomas | Sizemore | Abb | Member | |
| Steven | Snyder | Hitachi Energy | Member | |
| Brian | Sonnenberg | Iti | Member | |
| Chris | Steineman | Meramec Instrument Transformer | Member | |
| Dervis | Tekin | Meramec instrument transformer | Guest | Yes |
| Risto | Trifunoski | Trench | Member | |
| Alberto Luiz | Vieira | Pfiffner | Guest | Yes |
| David | Wallace | Mississippi State University | Member | |
| Nathen | Ward | ERMCO, Inc. | Guest | No |
| Barrett | Wimberly | GEVERNOVA | Member | |

# Instrument Transformer Subcommittee

**Document #:**

**Document Title:** **Instrument Transformer Subcommittee**

| | | | | |
|---|---|---|---|---|
| Igor | Ziger | Koncar instrument transformers | Secretary | |

Date: October 20th, 2025
Meeting: IEEE C7.13 WG

**Attendees:** 30 members were present and quorum was obtained. 18 quest requested membership.

**Essential Patent Claims:** Text was displayed, and the Chair inquired as to if anyone knew of essential patent claims. None were brought up.

**Copyright:** Text was displayed at the meeting

**Minutes of the Spring 2025 meeting:** Unanimously approved with motion brought forward by Diego Robalino and seconded by Scott McCloskey

**Agenda:** Unanimously approved with motion brought forward by Huan Dinh and seconded by Frank Neder.

**Review of HW assignments**

- The status of unfinished HW assignments was updated
- 5 HW assignments were reviewed (10, 17, 19, 20, 23):

- **HWA 10 4.2.1 Insulation and temperature rise at high altitude**
- The general clause was accepted after a short discussion
- Ryan Hogg asked to verify compliance with former standard, which is used as a basis for FERC and NERC requirements. This refers to thermal rating with altitude
- The decision was to tabulate the requirements for temperature rise at high altitude
- Rudy Ogajanov asked to coordinate the titles with the SSVT standard

- **HWA 17 Transformer Markings**
- The text proposed by Jaroslaw will be included in the standard (probably clause 7.16)

- **HWA 19 7.9 Short-circuit requirements**
- The general clause was accepted after a short discussion
- It was brought forward to check the accuracy limits after the SC for 0.3 class in table 39
- The phrase “uncertainty limits” should be improved in table 39
- A note needs to be added that the accuracy limits are relevant after demagnetization. Also a note needs to be added that the unit can be out of accuracy after the test

- **HWA 20 6.1.9.4 Inter-turn insulation requirements for current and combined transformers**
- The final proposal done by A. Rottenbacher was reviewed
- There was a lot of discussion on whether this replaces the induced test
- The procedure B should be made standard, and A should be the alternative
- A motion was brought forward to add the text Andre proposed into the separate clause (6.1.9.5). The motion was made by A. Rottenbacher and seconded by Scott McCloskey. A vote was held with 28 for, 1 against and 1 abstained

- It was decided to send the final version of the clause to the group for approval
- **HWA 23 7.1 Temperature rise requirements**
- The general clause was accepted after a short discussion
- There was a comment by Frank Neder about adding a 3rd method for CTVT temperature rise test which would allow performing the separate CT and VT tests and then add the temperature. The method was deemed plausible, but more testing results need to be proposed before it is included in the standard. This will be done by the next meeting

**Other comments and topics**

- Ryan Hogg brought forward the proposal for dual and multi ratio CTs. After a short discussion it was oncluded to adopt a slightly modified wording
- The definitions will read as:

**dual ratio current transformer**: One with two ratios obtained by the use of taps on the secondary winding and/or reconnectable primaries.

**multi ratio current transformer**: One with three or more ratios obtained by the use of taps on the secondary winding and/or reconnectable primaries.

-
- It was decided to add a sentence that the SC and temperature rise tests are performed in the most unfavourable connections.
- Table 9 of the standard should be updated, with the header changed to “Dual Ratio with secondary taps”

- J. Oliveira brought forward the voltage factor for group 2. After a short discussion it was concluded to use 1.25 / 8 h for group 2. IT was also concluded to flip the columns in Table 3 to make it more readable. A revision of the VT groups is stil pending

**Motion to adjourn:** A motion was put forth by Franke Neder and seconded by Jaroslaw Chorzepa

**Next Meeting:** This WG will meet to continue work at the Ft. Worth, TX Spring 2026 meeting.

Igor Ziger
10/20/2025

| Last Name | First Name | Email | Company | Membership Status | Checkbox to request membership |
|---|---|---|---|---|---|
| Alkire | Ryan | Ryan.alkire@gevernova.com | Gevernova / ITI | Guest | X |
| Bhasdwaj | Naveen | naveen.bhasdwaj@trench-group.com | Trench-Group | Guest | |
| Blackmon | Cole | acblackm@southernco.com | Southern Company Services | Guest | X |
| Bolar | Sanket | sanketbolar@oncor.com | Oncor | Guest | |
| Brzoznowski | Steven | stbrzoznowski@bpa.gov | BPE | Guest | |
| Carr | Deniss | deniss.carr@gevernova.com | GE Grid Solutions | Member | |
| Craven | Michael | mpcraven@bellsouth.net | Qualus Engineering Services | Guest | |
| Crockett | Daniel | Dcrockett3@Ameren.com | Ameren | Guest | |
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| Dinh | Huan | huan.m.dinh@hitachienergy.com | Hitachi Energy | Member | |
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| Euvrard | Eric | eric.euvrard@rhmintl.com | RHM International | Member | |
| Garret | Sarkinea | garret.d.sarkinea@xcelenergy.com | Xcel Energy | Guest | X |
| Ghosh | Robert | sghrob@gmail.com | GE | Member | |
| Hanson | Corey | coreyw.hanson@gmail.com | Flex-core | Guest | X |
| He | Libo | lbhe@grefort-elec.com | Grefort Electrical | Guest | X |
| Herron | John | jherron@raytechusa.com | Raytech | Guest | X |
| Hochanh | Thang | c.thang.ho@dominionenergy.com | Dominion Energy | Guest | |
| Hogg | Ryan | rhogg@ieee.org | Bureau of Reclamation | Member | |
| Hossein | Nabi-Bidhendi | hnabi@itec-ctvt.com | ITEC | Guest | X |
| Jarosz | Patrycja | p.jarosz@ieee.org | IEEE SA | Guest | X |
| Kaineder | Kurt | kurt.kaineder@trench-group.com | Trench Austria | Member | |
| Keels | Andy | thomanakeels@ieee.org | KEElictric Engineering | Guest | |
| Kocacic | Luka | luka.kovacic@koncar.hr | Koncar Instrument Transformers | Guest | X |
| KoronowsKi | Marek | mkoronowski@polucast.com | Polycast | Member | |
| Lovins | Colby | Colby.lovins@ieee.org | Federal Pacific | Guest | X |
| McBride | James | jim@jmxhv.com | JMX Services, Inc. | Member | |

| | | | | | | |
|---|---|---|---|---|---|---|
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| Middleton | Robert | bob.middleton@rhmintl.com | RHM International | Member | | |
| Milojevic | Goran | goran@dc-power.com | DV Power | Guest | X | |
| Morando | Augusto | Agusto.morando@pfiffner-usa.com | Pfiffner | Guest | X | |
| Mullikin | Randy | randy.b.mullikin@us.abb.com | ABB Inc. | Member | | |
| Neder | Frank | frank.neder@trench-group.com | Trench Germany | Member | | |
| Nguyen | Namtran | nguyennantran@gmail.com | TT Electronics | Guest | X | |
| Oakes | Stephen | soakes3121@gmail.com | WEG Transformers USA Inc. | Member | | |
| Ogajanov | Rudolf | rudy.p.ogajanov@hitachienergy.com | Hitachi Energy | Member | | |
| Oliveira | Jonas | jonas.oliveira@hitachienergy.com | Hitachi Energy | Member | | |
| Peterson | Caroline | caroline.peterson@xcelenergy.com | Xcel Energy | Member | | |
| Propts | Thomas | Thomas.e.propts@dominionenergy.com | Dominion Energy | Duest | X | |
| Ramirez | Ernesto | ernesto.Ramirez@arteche.com | Arteche | guest | X | |
| Rashid | Adnan | adnan.rashid@canada.ca | Measurement Canada / ISED | Member | | |
| Ribiero | Marilia | marilia.ribeiro@ge.com | GE Grid Solutions | Member | | |
| Robalino | Diego | diego.robalino@megger.com | Megger | Member | | |
| Roman | Zoltan | zoltan.roman@ritzusa.com | RITZ Usa | Member | | |
| Rottenbacher | Andre | andre.roba@hotmail.com | RITZ Usa | Member | | |
| Samutthannanont | Ben | ben.samutthananont@ised-isde.gc.ca | Measurement Canada / ISED | Guest | | |
| Shang | Bryan | bryan.shang@us.abb.com | ABB Inc. | Guest | | |
| Sharma | Devki | devkisharma@ieee.org | Retired | Guest | | |
| Sizemore | Thomas | thomas.sizemore.us@ieee.org | ABB Inc. | Member | | |
| Snyder | Steven | slsnyder@ieee.org | Hitachi Energy | Member | | |
| Sonnenberg | Brian | brian.sonnenberg@ge.com | Instrument Transformers, LLC | Member | | |
| Steineman | Chris | csteineman@hubbell.com | Meramec Instrument Transformer | Member | | |
| Stelmach | David | dstelmach@hotmail.com | Intellirent | Guest | | |
| Sweetster | Charles | charles.sweetster@omicronenergy.com | OMICRON electronics Corp USA | Member | | |
| Trifunoski | Risto | risto.trifunoski@trenchgroup.com | Trench Limited | Member | | |
| Valley | Joel | joel.valley@faypwc.com | Fayetteville PWC - NC | Guest | X | |
| Vieira | Alberto | alberto.vieira@pfiffner.com.br | Pfiffner | Guest | X | |

# Instrument Transformer Subcommittee
## TF Accuracy Task Force Report

| | |
|---|---|
| **Document #:** | **C57.13** |
| **Document Title:** | **Standard requirements for instrument transformers Accuracy TF** |

| | | | |
|---|---|---|---|
| **Chair:** | **Igor Ziger** | **Vice-Chair** | **Jonas Oliveira** |
| **Secretary** | **-** | **Percent Complete** | **80%** |

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|---|---|---|---|
| **Current Draft Being Worked On:** | **D 1.2** | **Dated:** | 25.09.2025. |
| **PAR Expiration Date:** | **-** | | |

| | | | |
|---|---|---|---|
| **Meeting Date:** | **21.10.2025.** | **Time:** | **9:30** |
| **Location:** | **Bonita Springs** | | |

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|---|---|---|
| **Attendance:** | **Members** | **29** |
| | **Guests** | **14** |
| | **Guests Requesting Membership** | **12** |
| | **Total*** | **55** |

*** Attendance list for this meeting is shown at end of meeting minutes**

## Meeting Minutes / Significant Issues / Comments:

Meeting was called to order at 9:30 am, 21.10, 2025.

1. Administrative
    a. IEEE Patent Policy and Call for Patents
        i. No comments from group.
    b. IEEE SA Copyright Policy
        i. No comments from group.
    c. Review of agenda
        i. No comments from group.
    d. Introductions of the attendees
        i. QR code for attendance recording was diplayed
    e. Updated membership review and count for quorum
        i. 29 members were present . Quorum was obtained.
        ii. 12 attendees requested membership.
    f. Rudy Ogajanov Motioned for approval of agenda, David Wallace seconded. No objections noted, motion passed.
    g. Thomas Sizemore motioned for approval of minutes, Rudy Ogajanov seconded. No objections noted, motioned passed.

# Instrument Transformer Subcommittee
## TF Accuracy Task Force Report

| | |
|---|---|
| **Document #:** | **C57.13** |
| **Document Title:** | **Standard requirements for instrument transformers Accuracy TF** |

## 2. Old Business

-

## 3. New Business

### Volunteers for annexes C, E, H and I

The annexes need editorial work. Z. Roman agreed to send out the word version of the document so it is easier to edit. The list of volunteers is as follows:

Rob Ghosh

Joel Valley

Deniss Carr

Brian Sonnenberg

Jaroslaw Chorzepa

Ryan Alkire

Marek Kornowski

An email will be sent out to the volunteers to assign which annex they will be working on. The proposed due date for submitting the annexes is the end of the year.

### Discussion on new standard burdens

There was some discussion on why the burdens are separated. Thomas Sizemore pointed out the necessity of new standard burdens given the actual load from the modern relays. Jonas Oliveira commented that it makes no sense to have a 1 VA burden since the measurement will go from zero burden to the rated burden. In the end the group agreed to decide on the two topics, the burden values and the burden designations (letters).

The first motion, made by David Wallace and seconded by Scott McCloskey was to keep 2.5 VA, 25 VA and 75 VA with a power factor of 1 as the standard burdens. A vote was held with 26 for, 0 against and 3 abstained members. The motion has passed.

The second motion, made by Rudy Ogajanov and seconded by Risto Trifunoski was to designate J to 2,5 VA, K to 25 VA and N to 75 VA new standard burden values. A vote was held with 29 for, 0 against and 0 abstained members. The motion has passed.

### Resolution of comments on D1.2

11 out of the 15 comments were resolved in the original meeting. The resolutions are given in the comment resolution table.

The only comment that sparked a broader discussion was comment 11, about the need to have routine accuracy testing at the RF. Some participants brought forth the issue when testing a large quantity of consecutive units, the testing equipment overheats, and the cores are never out of accuracy at the RF. This is especially problematic with high RF (> 2.0) and/or high rated current. This was given by manufacturers who predominantly produce low voltage units. In contrast, manufacturers of HV equipment pointed out that the performance may very from core to core and that it should remain a routine test. Some of the users in the group also pointed out that they use the accuracy performance at the RF as referent. There was a small discussion about removing RF of 4.0 as well.

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| **Document #:** | **C57.13** |
| **Document Title:** | **Standard requirements for instrument transformers Accuracy TF** |

A motion was made by Brian Sonnenberg and seconded by Jaroslaw Chorzepa to remove the RF as a routine test and keep only as a type test. A vote was held with 8 for, 13 against and 2 abstained members. The motion did not pass. In the end, the following actions were decided upon:

- Add surrounding text and exemptions for LV units
- Revisit the need for RF 4.0
- Look at introducing a new type of RF which is accuracy bound

A proposal shall be made by the TF chair and sent to the WG for comments.

The meeting was continued in the ITSC meeting. 28 members were present and quorum was obtained. The remaining 4 comments were resolved. The resolutions are given in the comment resolution table.

There was a discussion on comment 13 to remove resistance measurement as a routine test. Several participants questioned the necessity for C class cores. Others claimed that this is standard practice. In the end a middle ground was achieved by putting the optional wording in table 23. A motion was made by Brian Sonnenberg and seconded by Scott McCloskey to indicate resistance measurement as optional for all relaying classes except for class X, where it remains mandatory. A vote was held with 13 for, 11 against and 4 abstained members. The motion passed and table 23 will be reworded in accordance.

4. Next meeting: Ft. Worth, TX Spring 2025 meeting

5. Close of meeting
    a. David Wallace Motioned to adjourn, Huan Dinh seconded. No objections
    b. Meeting adjourned at 10:45 am.

Submitted by: J. Oliveira and I. Ziger
Date: 21.10.2025.

Members and Guests list

Excel sheet with the attendance roster is attached.

# Instrument Transformer Subcommittee
## TF Accuracy Task Force Report

**Document #:** C57.13

**Document Title:** Standard requirements for instrument transformers
Accuracy TF

| First Name | Last Name | Affillation | Role in the TF | Request Membership |
|---|---|---|---|---|
| Frank | Alkire | GE Vernova | Guest | Yes |
| Stephen | Ashcraft | Hitachi Energy | Member | |
| Jaroslaw | Chorzepa | ABB Inc. | Member | |
| Will | Coughlan | Metglas Inc | Guest | No |
| Dan | Crockett | Ameren | Member | |
| Carr | Deniss | GE Vernova | Member | |
| Huan | Dinh | Hitachi Energy USA | Member | |
| Abdalla | Elnor | Enercon Services Inc, | Guest | Yes |
| Richard | Erwin | Hitachi Energy | Member | |
| Richard | Erwin | Hitachi Energy | Guest | Yes |
| Rob | Ghosh | GE Vernova | Member | Yes |
| Christopher | Gunter | Siemens Energy, Inc | Guest | No |
| Corey | Hanson | Flex-Core | Member | |
| Libo | He | Grefort Electrical | Guest | Yes |
| Ryan | Hogg | Bureau of Reclamation | Member | |
| Marek | Kornowski | Polycast | Member | |
| Luka | Kovacic | Koncar Instrument Transformers inc | Member | |
| Colby | Lovins | Federal Pacific | Guest | No |
| Daniel | Martinez | Guest | Guest | No |
| Scott | Mccloskey | AMRAN | Member | |
| Augusto | Morando | Pfiffner | Guest | Yes |
| Randolph | Mullikin | ABB | Member | |
| Hossein | Nabi Bidhendi | ITEC | Guest | Yes |
| Frank | Neder | Trench Group | Member | |
| Stephen | Oakes | WEGTransformers | Guest | |
| Rudolf | Ogajanov | Hitachi Energy | Member | |
| Jonas | Oliveira | Hitachi | Member | |
| Caroline | Peterson | Xcel Energy | Member | |
| Thomas | Propts | Dominion Energy | Guest | No |
| Crystal | Qiao | Trench group | Guest | Yes |
| Ernesto | Ramirez | Arteche | Guest | Yes |
| Adnan | Rashid | Measurement Canada | Member | |
| Marilia | Ribeiro | GE Vernova | Member | |
| Alexander | Richards | Spearmint Energy | Guest | No |
| Jason | Rodriguez | Siemens Energy | Guest | No |
| Zoltan | Roman | GE Vernova | Member | |
| Andre | Rottenbacher | Ritz | Guest | No |
| Ben | Samutthananont | Measurement Canada | Guest | No |
| Garret | Sarkinen | Xcel energy | Guest | No |
| Nithin | Satheesh | Trench Limited | Guest | Yes |
| Bryan | Shang | ABB | Guest | Yes |
| Manpreet | Singh | Constellation Energy | Guest | No |
| Thomas | Sizemore | Abb | Member | |
| Nicholas | Skoff | Dominion Energy | Guest | Yes |
| Steven | Snyder | Hitachi Energy | Member | |
| Brian | Sonnenberg | Iti | Member | |
| Chris | Steineman | Meramec Instrument Transformer | Member | |
| Dervis | Tekin | Meramec instrument transformer | Member | |
| Risto | Trifunoski | Trench | Member | |
| Joel | Valley | fayetteville PWC | Guest | No |
| Alberto Luiz | Vieira | PFIFFNER | Guest | Yes |
| David | Wallace | Mississippi State University | Member | |
| Barrett | Wimberly | GEVERNOVA | Member | |
| Chris | Wright | Industry | Guest | No |
| Igor | Ziger | Koncar Instrument Transformers | Member | |

# Instrument Transformer Subcommittee
## TF Accuracy Task Force Report

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|---|---|
| **Document #:** | **C57.13** |
| **Document Title:** | **Standard requirements for instrument transformers<br>Accuracy TF** |

# Instrument Transformer Subcommittee
## TF to merge C57.13.5 into C57.13 Task Force Report

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|---|---|
| **Document #:** | **MoM TF to merge C57.13.5 into C57.13** |
| **Document Title:** | **Standard requirements for instrument transformers** |

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|---|---|---|---|
| **Chair:** | **Zoltan Roman** | **Vice-Chair** | **Igor Ziger** |
| **Secretary** | **-** | **Percent Complete** | **20%** |

| | | | |
|---|---|---|---|
| **Current Draft Being Worked On:** | **D 3.0** | **Dated:** | 20.10.2025. |
| **PAR Expiration Date:** | **-** | | |

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|---|---|---|---|
| **Meeting Date:** | **21.10.2025** | **Time:** | **1:45 pm** |
| **Location:** | **Bonita Springs** | | |

| | | |
|---|---|---|
| **Attendance:** | **Members** | **24** |
| | **Guests** | **11** |
| | **Guests Requesting Membership** | **13** |
| | **Total*** | **48** |

*** Attendance list for this meeting is shown at end of meeting minutes**

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**Meeting Minutes / Significant Issues / Comments:**

Meeting was called to order at 1:45 pm, 21.10, 2025.

1. Administrative
    a. IEEE Patent Policy and Call for Patents
        i. No comments from group.
    b. IEEE SA Copyright Policy
        i. No comments from group.
    c. Review of agenda
        i. No comments from group.
    d. Introductions of the attendees
        i. QR code for attendance recording was displayed
    e. Updated membership review and count for quorum
        i. 24 members were present. Quorum was obtained
        ii. 13 attendees requested membership.
    f. David Wallace motioned for approval of agenda, Jaroslaw Chorzepa seconded. No objections noted, motion passed.
    g. Rudy Ogajanov motioned for approval of minutes, Thomas Sizemore seconded. No objections noted, motion passed.

| | |
|---|---|
| **Document #:** | **MoM TF to merge C57.13.5 into C57.13** |
| **Document Title:** | **Standard requirements for instrument transformers** |

**2. Old Business**

**-**

**3. New Business**

**69 kV PD requirements**

A proposal was made to align the 72,5 kV PD requirements with the 115 – 800 kV voltage level group. There was a previous decision to "split" the requirements to LV and MV (46 and below) and HV (72,5 kV and above). The new proposal included a pre-stress voltage of 112 kV (80% of PFWV) and extinction voltage of 72,5 kV.

There was a brief discussion. Members asked whether the criteria for PD inception remained the same, which was confirmed. The majority of the group agreed with the new proposal.

A motion was made by David Wallace and seconded by Risto Trifunoski to accept the proposed values and update the appropriate table in D3 of the document. A vote was held with 24 for, 1 against and 0 abstained members. The motion has passed.

**Insulation levels table (Table 11 in D3)**

2008 version of the document included a table for increased insulation levels for CTs in vicinity of circuit breakers. This table was excluded in the 2016 version of the draft. In doing so, valuable information was lost on selecting the appropriate voltage levels when high transient activity is expected.

A proposal was made to introduce an additional table similar to Table 3 from 2008 version. However, the idea is to split the main table (Table 11) and place the higher BIL classes, wherever applicable into the new table and keep the lower BIL classes in the original table. In addition, the proposal was to increase the SIL level at 550 kV to 1350 kV (exactly 75% of the BIL) from 1300 kV and introduce an additional level at 800 kV (800 / 1050 / 2400 / 1800 kV). The background is that the margins (BIL compared to Um and PFWV compared to Um) are the lowest for 550 kV and 800 kV system voltages. The proposed voltage levels were based on existing specifications.

A lengthy discussion followed. With the main topics highlighted below:

- H. Dinh noted that the existing dielectric voltage levels are higher for instrument transformers than for power transformers, for the 800 kV system. It was also noted that the "lower" 800 kV level was present in the standard for a while, and that it makes sense that the levels for ITs are higher than those for power transformers, as ITs are typically not as well protected from overvoltages as power transformers. In the end the lower level for 800 kV was confirmed.
- J. Oliveira expressed doubt in separating the levels into two table as the thought is that the users will specify lower BIL as the default, which is not necessarily the practice today
- Several members contributed that it should be stated that the enhanced levels are preferred
- R. Trifunoski and I. Ziger commented on the enhanced 550 kV level and argued that there is no need in increasing 1300 kV BIL to 1350 kV BIL as the existing level is present and verified and does not need to be changed due to "mathematical alignment"
- There was a comment whether to bring the MV levels (15 and 25 kV) into the enhanced level table. It was concluded that it is not necessary as both versions are prevalent
- There were comments that 115 kV and 230 kV should remain in the original table, as the users frequently specify the enhanced levels by default
- There was a comment by I. Ziger that a split in this table will influence also the PD table and possibly other parts of the document
- Devki Sharma proposed to make the split at 362 kV and introduce two tables, which seemed as the most appropriate compromise
- Rudy Ogajanov felt that the group needed more time to make a decision

- In the end the proposal was to update the requirements based on the discussion, put them in D3 and comment on them in the next meeting

4. Next meeting: Ft. Worth, TX Spring 2025 meeting

5. Close of meeting
   a. Huan Dinh Motioned to adjourn, Robert Middleton seconded. No objections
   b. Meeting adjourned at 3:00 pm.

Submitted by: Zoltan Roman
Date: 22.10.2025.

Attendance

| First name | Last name | Affiliation | Role in the TF | Requested membership |
|---|---|---|---|---|
| Ryan | Alkire | GE Vernova | Guest | Yes |
| Seetaram | Alwala | Kiewit | Guest | No |
| Stephen | Ashcraft | Hitachi Energy | Member | |
| Deniss | Carr | GE Vernova | Member | |
| Jaroslaw | Chorzepa | ABB Inc. | Member | |
| Dan | Crockett | Ameren | Guest | No |
| Huan | Dinh | Hitachi Energy USA | Member | |
| Richard | Erwin | Hitachi Energy | Member | |
| Eric | Euvrard | RHM International | Guest | No |
| Rob | Ghosh | GE Vernova | Member | |
| Christopher | Gunter | Siemens Energy, Inc | Guest | No |
| Corey | Hanson | Flex-Core | Guest | |
| Ryan | Hogg | Bureau of Reclamation | Guest | No |
| Thomas | Keels | kEElectric Engineering, PLLC | Guest | Yes |
| Marek | Kornowski | Polycast | Guest | Yes |
| Luka | Kovacic | Koncar Instrument Transformers Inc. | Guest | Yes |
| Scott | Lochridge | ERMCO | Guest | No |
| Jim | McBride | JMX High Voltage | Guest | No |
| Scott | McCloskey | Amran | Member | |
| Robert | Middleton | RHM International | Member | |
| Augusto | Morando | Pfiffner | Guest | Yes |
| Hossein | Nabi Bidhendi | ITEC | Guest | Yes |
| Frank | Neder | Trench Group | Member | Yes |
| Rudolf | Ogajanov | Hitachi Energy | Member | |

**Document #:** **MoM TF to merge C57.13.5 into C57.13**

**Document Title:** **Standard requirements for instrument transformers**

| | | | | |
|---|---|---|---|---|
| Jonas | Oliveira | Hitachi Energy | Member | |
| Caroline | Peterson | Xcel Energy | Member | |
| Thomas | Propts | Dominion Energy | Guest | No |
| Crystal | Qiao | Trench group | Guest | Yes |
| Ernesto | Ramirez | Arteche | Guest | Yes |
| Marilia | Ribeiro | GE Vernova | Member | |
| Zoltan | Roman | GE Vernova | Chair | |
| Andre | Rottenbacher | Ritz | Member | |
| Garret | Sarkinen | Xcel energy | Member | |
| Nithin | Satheesh | Trench Limited | Guest | Yes |
| Brya | Shang | ABB | Guest | Yes |
| Michael | Shannon | Rea Magnet Wire | Guest | Yes |
| Devki | Sharma | Retired | Guest | No |
| Thomas | Sizemore | Abb | Member | |
| Steven | Snyder | Hitachi Energy | Member | |
| Brian | Sonnenberg | Iti | Member | |
| Chris | Steineman | Meramec Instrument Transformer | Member | |
| Dervis | Tekin | Meramec instrument transformer | Guest | Yes |
| Risto | Trifunoski | Trench | Member | |
| Alberto Luiz | Vieira | Pfiffner | Guest | Yes |
| David | Wallace | Mississippi State University | Member | |
| Nathen | Ward | ERMCO, Inc. | Guest | No |
| Barrett | Wimberly | GEVERNOVA | Member | |
| Igor | Ziger | Koncar instrument transformers | Secretary | |

# Instrument Transformer Subcommittee
## Working Group / Task Force Report

| | | | |
|---|---|---|---|
| **Document #:** | | | |
| **Document Title:** | **Minutes of Meeting PC57.13.11 Fall Meeting 2025** | | |
| **Chair:** | **Frank Neder** | **Vice-Chair** | **Zoltan Roman** |
| **Secretary** | **Chris Steineman** | **Percent Complete** | |
| **Current Draft Being Worked On:** | **1st** | **Dated:** | Not yet published |
| **PAR Expiration Date:** | **Dec 2029** | | |
| **Meeting Date:** | **10/20/2025** | **Time:** | **11:00 AM** |
| **Location:** | **Bonita Springs FL** | | |

| | | |
|---|---|---|
| **Attendance:** | **Members** | **21** |
| | **Guests** | **21** |
| | **Guests Requesting Membership** | **6** |
| | **Total*** | **42** |

*** Attendance list for this meeting is shown at end of meeting minutes**

## Meeting Minutes / Significant Issues / Comments:

Meeting was called to order at 11:00 AM, Oct. 20, 2025.

### 1. Administrative

a. IEEE Patent Policy and Call for Patents
   i. No comments from group.
b. IEEE SA Copyright Policy
   i. No comments from group.
c. Review of agenda
   i. No comments from group.
   ii. Agenda was unanimously approved.
d. Introductions of the attendees
   i. QR code was displayed for attendee login.
e. Updated membership review and count for quorum
   i. 22 members were present by display of membership and count – confirmed Quorum attained.
   ii. 6 attendees requested membership (see roster).

   In addition to the electronic roster, Robert Middleton and Eric Euvrard (both affiliated with RHM International) were in attendance and requested membership.
f. David Wallace Motioned for approval of agenda, Kurt Kaineder seconded. No objections noted, motion passed.

g. Kurt Kaineder motioned for approval of minutes, David Wallace seconded. No objections noted, motioned passed.

## 2. Old Business

## 3. New Business

### A. Discussion on Possibility of Std Development with IEC

IEC paused the development of LPIT standard 61869-7 & -8 and will be re-starting efforts soon.
The question was posed by the Chair whether we should move to collaborate and develop these jointly.
Several comments were made by participants including T. Sizemore, S. Shull, and Z. Roman.
Following discussion, no motions were offered to move forward with joint development.

### B. Proposal for the Standard to Reference General Requirements from C57.13

A proposal was made for the new standard to reference, in all cases possible, the general service conditions in the main standard. These are items such as temperatures, dielectric ratings, etc.

It was noted that there would be exceptions and these would be stated explicitly in the standard.

Following discussion, a motion to this effect was made by D. Wallace and seconded by T. Sizemore.

The vote was unanimous in favor with no abstentions.

### C. Presentations of Various LPIT Technologies

Chair delivered a presentation on the technologies of Optical Current Transformer, RC Voltage Divider, and Zero Flux Current Transformer

Q&A followed, including discussion of variations of technologies that may need to be considered in the upcoming standard.

D. A long discussion ensued on what the scope of the standard would be; specifically does it end with the transducer, include the back-end electronics, etc. The discussion included input from at least one end user who voiced concern over whether utilities would be able to specify LPIT systems with the flexibility with traditional CTs and VTs.
It was stated that, as a general principle, the upcoming standard would address the measurement device up to and including the interface to the (IEC) 61850 communications bus.

**4. Next meeting: Spring 2026 in Fort Worth, TX**

**5. Close of meeting**

a. Zoltan Roman Motioned to adjourn, David Wallace seconded. No objections
b. Meeting adjourned at 12:15 PM.

Submitted by: Chris Steineman/Frank Neder Date: 11/xx/2025

Members and Guests list

Below membership as of Spring_25 meeting, which will be updated by the Fall-25 meeting

# Instrument Transformer Subcommittee
## Working Group / Task Force Report

**Document #:**

**Document Title:** **Minutes of Meeting PC57.13.11 Fall Meeting 2025**

| No | Given Name | Last Name | Affiliation | Please indicate your intention | For non members o |
|---|---|---|---|---|---|
| 1 | Hanson | Corey | Flex-Core | Member/Remain Member | |
| 2 | Cole | Blackmon | SOCO | Observer/Guest | |
| 3 | Christopher | Gunter | Siemens Energy, Inc. | Observer/Guest | |
| 4 | Daniel | Sauer | Eaton | Observer/Guest | |
| 5 | Adnan | Rashid | Measurement Canada | Member/Remain Member | |
| 6 | Jonas | Oliveira | Hitachi | Observer/Guest | |
| 7 | Luka | Kovacic | Koncar Instrument Transformers inc | Observer/Guest | Yes |
| 8 | Ryan | Alkire | GE Vernova / ITI | Observer/Guest | Yes |
| 9 | Eric | Euvrard | RHM INTERNATIONAL | Observer/Guest | Yes |
| 10 | Zoltan | Roman | GE Vernova | Member/Remain Member | |
| 11 | Nicholas | Skoff | Dominion Energy | Observer/Guest | Yes |
| 12 | Igor | Ziger | Koncar - Instrument transformers | Member/Remain Member | |
| 13 | Marilia | Ribeiro | GE Vernova | Member/Remain Member | |
| 14 | Deniss | Carr | GE Vernova | Member/Remain Member | |
| 15 | Bryan | Shang | ABB | Observer/Guest | |
| 16 | Hossein | Nabi Bidhendi | ITEC | Member/Remain Member | Yes |
| 17 | Ben | Samutthananont | Measurement Canada | Observer/Guest | |
| 18 | Stephen | Ashcraft | Hitachi Energy | Member/Remain Member | |
| 19 | Middleton | Robert | RHM International | Member/Remain Member | |
| 20 | Dan | Crockett | Ameren | Member/Remain Member | |
| 21 | Devki | Sharma | Retired | Observer/Guest | |
| 22 | Alexander | Millan | Siemens | Observer/Guest | |
| 23 | Daniel | Carreno Perez | Hitachi Energy | Observer/Guest | |
| 24 | Peter | Werelius | Megger Sweden AB | Observer/Guest | |
| 25 | Andre | Rottenbacher | Ritz | Observer/Guest | Yes |
| 26 | David | Wallace | Mississippi State University | Member/Remain Member | |
| 27 | Alberto Luiz | Vieira | Pfiffner Group | Observer/Guest | |
| 28 | Huan | Dinh | Hitachi Energy USA Inc | Member/Remain Member | |
| 29 | Chris | Steineman | Meramec Instrument Transformer | Member/Remain Member | |
| 30 | Augusto | Morando | Pfiffner | Observer/Guest | |
| 31 | Rob | Ghosh | GE Vernova | Member/Remain Member | |
| 32 | Thomas | Sizemore | Abb | Member/Remain Member | |
| 33 | Dervis | Tekin | Meramec Instrument Transformer Co. | Member/Remain Member | Yes |
| 34 | Charles | Sweetser | OMICRON | Observer/Guest | |
| 35 | Scott | Mccloskey | Amran inc | Observer/Guest | |
| 36 | Kurt | Kaineder | Trench Austria | Member/Remain Member | |
| 37 | Chorzepa | Jaroslaw | ABB Inc. | Member/Remain Member | Yes |
| 38 | Barrett | Wimberly | GE Vernova | Member/Remain Member | Yes |
| 39 | Richard | Erwin | Hitachi Energy | Observer/Guest | |
| 40 | Rudolf | Ogajanov | Hitachi Energy | Observer/Guest | Yes |
| 41 | Caroline | Peterson | Xcel Energy | Member/Remain Member | |
| 42 | Frank | Neder | Trench Group | Member/Remain Member | |

Instrument Transformers Subcommittee

**Working Group for PLC capacitors and Coupling Capacitor Voltage Transformers (C57.13.9) Meeting Minutes**

October 21, 2025, Bonita Springs FL

The Working Group Chair, Zoltan Roman, started the meeting at 8:00 with Mike Craven as Secretary.

The meeting started with introductions and attendance. There were 53 attendees with 16 Members present of 21 and therefore a quorum. The IEEE patent notice was made and there were no patent claims. Attendees were notified of the copyright Policy with the standard IEEE presentation.

The motion to approve the Agenda was by Dave Wallace and seconded by Thomas Sizemore. There was no one opposed. Next was the motion to approve the Spring 2025 Denver meeting minutes by Thomas Sizemore and seconded by Dave Wallace. An error of not including the attendance in the minutes was pointed out and after a brief discussion the minutes were approved with no opposition contingent on the follow-up inclusion of the required attendance list.

Zoltan stated the goal of the meeting is to vote on recirculation after reviewing a few more comments and he continued with the Status of the Standard slide. Zoltan explained that a December 2026 PAR extension is submitted and expected to be approved. He thanked people who helped with redrawing figures and briefly considered what might be the re-balloting time period.

Zoltan started reviewing comments he had flagged and gotten assistance with rechecking the comments spreadsheet as needing discussion, approval and the Disposition finalized.

-Line item 145, discussed whether statement in the document satisfied the comment and finally REVISED with adding "Other measures to prevent corona…" and the Disposition was filled in.
-Line 146 about Subclause 6.4 was REJECTED after a short discussion about "must" and it is already considered satisfied with "shall." Disposition revised.
-Line 190 about Subclause 7.2.1 was REJECTED as correct as is and explained in the Disposition.
-Line 220 about Subclause 7.4 was already corrected and ACCEPTED.
-Line 201 about Subclause 7.2.2.1.2 about frequency was also ACCEPTED as already corrected.
-Line 259 there was some discussion about adding a 'quality factor' definition. Zoltan will check if it is defined elsewhere.
-Line 277 was REJECTED as the IEC standard test was already widely used and accepted.
-Line 768 item was REVISED with text changes as noted in Disposition.
-Line 287 about Subclause 8.2.3 was another item REJECTED and already satisfied.
-Line 311 about Subclause 8.3.7 was REVISED as noted in the Disposition.
-Line 312 was similar to the above.

At this point there was a motion by Dave Wallace and seconded by Thomas Sizemore "To release Draft 18 for recirculation after the last few comments were finalized." All 17 members present voted to approve with no objections.

The meeting adjourned at 9:14 with a motion by Diego Robalino and seconded by Barrett Wimberly.

Attendance:

| First Name | Last Name | Role | Company |
|---|---|---|---|
| Stephen | Ashcraft | Member | Hitachi Energy |
| Naveen | Bhardwaj | Guest | Trench |
| Deniss | Carr (Villagran) | Member | GE Vernova |
| Jaroslaw | Chorzepa | Guest | ABB Inc. |
| Michael | Craven | Secretary | Qualus Power Services |
| Daniel | Crockett | Guest | Ameren |
| Sami | Debass | Guest | Epri |
| Richard | Erwin | Guest | Hitachi Energy |
| Rob | Ghosh | Guest | GE Vernova |
| Detlev | Gross | Guest | Power Diagnostic Consultant |
| Chris | Gunter | Guest | Siemens Energy Inc. |
| Corey | Hanson | Guest | Flex-Core |
| Patrycja | Jarosz | Guest | IEEE SA |
| Kurt | Kaineder | Guest | Trench Austria |
| Thomas A. | Keels | Guest | KEElectric Engineering |
| Luka | Kovacic | Guest | KONCAR - Instrument Transformers |
| Scott | McCloskey | Guest | Amran Inc. |
| Robert | Middleton | Member | RHM International |
| Randolph | Mullikin | Guest | ABB Inc. |
| Hossein | Nabi-Bidhendi | Guest | ITEC |
| Frank | Neder | Guest | Trench Germany GmbH |
| Rudolf | Ogajanov | Guest | Hitachi Energy |
| Jonas | Oliveira | Guest | Hitachi Energy |
| Caroline | Peterson | Member | Xcel Energy |
| Henry | Pinto | Guest | Island Associates |
| Thomas | Propts | Guest | Dominion Energy |
| Crystal | Qiao | Guest | Trench |
| Ernesto | Ramirez | Guest | Arteche |
| Adnan | Rashid | Member | Measurement Canada / ISED |
| Marilia | Ribeiro | Guest | GE Vernova |
| Diego | Robalino | Member | Megger |
| Zoltan | Roman | M-Chair | GE Vernova |
| Andre | Rottenbacher | Member | Ritz Instrument Transformers |
| Nithin | Satheesh | Guest | Trench Limited |
| Bryan | Shang | Guest | ABB Inc. |
| Devki | Sharma | Guest | Retired |
| Sanket | Shetty (was Bolar) | Guest | Oncor Electric |
| Thomas | Sizemore | Member | ABB Inc. |
| Steven | Snyder | Member | Hitachi Energy |
| Brian | Sonnenberg | Guest | GE Vernova |
| Christopher | Steineman | Guest | Meramec Instrument Transformer Co. |

| | | | |
|---|---|---|---|
| Charles | Sweetser | Guest | OMICRON electronics Corp USA |
| Dervis | Tekin | Member | Meramec Instrument Transformer Co. |
| Risto | Trifunoski | Member | Trench Limited |
| David | Wallace | Member | Mississippi State University |
| Peter | Werelius | Guest | Megger |
| Barrett | Wimberly | Member | GE Vernova |
| Shibao | Zhang | Guest | PCORE Electric |
| Igor | Ziger | Member | KONCAR - Instrument Transformers |
| Ryan | Alkire | Guest | GE Vernova |
| Cole | Blackmon | Guest | Southern Company Services |
| Swapnil | Marathe | Guest | Megger |
| Joshua | Watson | Guest | NPPD |

Submitted by
Zoltan Roman,
Chair

November 1, 2025