

Annex C Distribution Subcommittee – Chair: Stephen Shull

November 1, 2017
Louisville, KY, USA

Chair: Stephen Shull
Vice-Chair: Jerry Murphy
Secretary: Josh Verdell

C.1 General Opening

Steve opened the meeting welcoming everyone to the meeting. Josh circulated the rosters. To establish a quorum, a list of members were displayed and a count of was made. We did have a quorum with 37 of the 55 members in attendance by count of those identified on a slide presented in the meeting. Recorded attendance gave 129 in attendance, 42 members and 26 requesting membership.

The agenda was reviewed, motion made by Dan Sauer, seconded by Gael Kennedy and approved by unanimous acclamation of the members in attendance.

The Fall 2016 meeting minutes were reviewed, and a motion was made by Ron Stahara, seconded by Craig Colopy and approved by unanimous acclamation of the members in attendance.

C.2 Working Group and Task Force Reports

IEEE C57.15/IEC 60076-21 – Step-Voltage Regulators – Craig Colopy

Craig presented the following minutes from the working group meeting on October 30, 2017 at 4:45 p.m. with 45 people in attendance.

1. Craig Colopy opened the meeting and introductions were made by the attendees.
2. Distribution of attendance sheets. Essential Patent call made by Craig Colopy - None received from attendees. Check for Quorum was made, 23 from card reader vs. 22 visual count, Members in attendance. Quorum was achieved (Total 38 members).
3. Approval of agenda - Dan Sauer made Motion, Steve Shull seconded, no opposition to approval. Approval of minutes from Spring 2017 meeting in New Orleans, No objections to unanimous approval - Approved.
4. Craig reviewed status of Draft 3.2 sent as a CDV through IEC and balloted through IEEE with two recirculations. 100% approved Draft 3.2 sent to RevCom for review/approval at the Dec 6 2017 Meeting . Forecasted IEEE publication set for March 2018 while IEC version is forecasted for August 2018.
5. Move for Adjournment - Dan Sauer made Motion, Steve Shull seconded, no opposition to approval. Close of meeting.

Submitted by: Gael R Kennedy and Craig Colopy

IEEE C57.12.20 – Overhead Distribution Transformers – Al Traut

Al presented the following minutes from the working group meeting on October 30, 2017 at 11:00 a.m. with 73 in attendance.

The meeting was called to order was immediately followed by introductions.

The patent policy was reviewed per guidelines from the ADCOM Meeting:

“If any individual believes that Patent Claims might be Essential Patent Claims that fact should be made known to the entire working group and will be duly recorded in the minutes of the working group meeting. This request shall occur at every standards-developing meeting once the PAR is approved by the IEEE-SA Standards Board.” **None were brought forward**

Based on the WG members projected on the screen, and count made of those shown, a quorum was declared. There were 34 of 41 members present.

The Chair asked if any member objected to the proposed agenda as displayed to the Working Group. No objections were brought forward so the agenda was unanimously approved as submitted.

The Chair asked if any member objected to the S17 (New Orleans, LA) minutes as submitted to the Working Group. No objections were brought forward; therefore, the S17 Minutes were unanimously approved.

The Chair reviewed the meeting requirements for membership Member:

- Request membership at the first meeting of the WG.
- Attend 2 consecutive meetings and request membership.
- Membership is granted following the 2nd meeting.
- Miss 2 consecutive meetings and you may be removed from membership.
- Special circumstances will be considered.

Guest: Any attendee that is not a member.

Four new members were recognized and added to the membership list:

- Igor Simonov
- Jermaine Clonts
- Charles Morgan
- Jeff Valmus

The two rosters were circulated with instructions.

The current status of the C57.12.20 document was reviewed:

- C57.12.20-2011 was published on September 20, 2011 given the 10-year cycle the standard would have been inactivated on September 20, 2021
- PAR was approved by NESCOM June 2012.
- PAR Extension was granted Dec 2016 with the PAR Expiring on December 31, 2017.
- Re-circulate ballot and submit to RevCom before 10/2017 deadline.
- Draft 6 was approved at 9/28/2017 RevCom Meeting

The Chair reviewed the final Draft 6 edits that were submitted to RevCom

1. One of the IEEE coordinating groups had several comments related to adding the words "help" or "assist" when referring to items regarding prevention, e.g., "help prevent..." vs "prevent...". This occurs several times in the document. This was changed to meet their suggested changes.
2. Table 5 was reviewed and it had a format error; therefore, we broke voltages was into two columns one single phase and the other three phase. In addition, the use of the delta symbol for three phase voltage ratings was addressed. Same thing on LV Terminal sizes (voltage ratings) 150 to 225 kVA dimensions were changed from the previous revision due to a typo.
3. Table 11 was reviewed; Updated the voltage rating and use of the delta symbol as discussed in Table 5 "Z" dimension does not apply for HV bushings with more than 30" creep length.
4. 7 figures were for configuration. One of the IEEE editors wanted to change the 7 "Figures" to "Tables". The Chair objected due to the historical used of the term "Figures" and the editor accepted this justification.

That was the extent of the changes made to C57.12.20 REV 6

Comments were requested from the working group and none were received from the floor. The Chair requested wanted a note added for us to check of the 347/600Y rating for consistency in the document. This will be part of final editorial review.

The Chair reviewed some of the topics slated to be addressed in the next revision:

1. Introduce and address the platform mounting arrangement into the standard.
2. The Chair asked Carlos Gaytan for the status of 12.39. If/when it is published there will be cause for us to refer to it in our standard and delete some of the specific information in 12.20, eg, clause 9.
3. Three phase connections are currently delta and wye only. Do we want to include the TT connection in this standard? We will place on agenda for discussion
4. "Figure" vs "Table" discussion, we need to be aware of it and mindful as we move forward
5. LV Terminals. We need to address some of the interchangeability discussion. We need to make sure that this standard follows what is being addressed in C57.19.02 i.e. tank hole and stud sizes, etc.
6. There are some things in the document that may need to be rearranged and placed in different clauses., eg, lifting lugs & support Lugs. Are they tank features or accessories?
7. Should we consider adding the requirement for coastal application?
8. The Chair asked for any other agenda items for the next revision. None were brought forward. The Chair suggested if something comes to mind send him an email;

At the Pittsburgh meeting we will review the outline of items for the next draft and prepare the title, scope and purpose for a new PAR. Present wording below:

Title

IEEE Standard for Overhead-Type Distribution Transformers 500kVA and Smaller: High Voltage, 34 500 V and Below; Low Voltage, 7970/13 800Y V and Below

1.1 Scope

This standard covers certain electrical, dimensional, and mechanical characteristics and safety features of single- and three-phase, 60-Hz, **liquid-immersed**, self-cooled, overhead-type distribution transformers 500 kVA and smaller, high voltages 34 500 V and below and low voltages 7970/13 800Y V and below.

1.2 Purpose

This standard is intended for use as a basis for determining the performance, interchangeability, and safety of overhead-type distribution transformers and to assist in the proper selection of this equipment.

The next meeting will be in March 2018 in Pittsburgh, PA.

The Meeting was adjourned 11:31

Submitted by: Ed Smith

IEEE C57.12.28, .29, .30, .31 & C57.12.32 – Enclosure Integrity – Dan Mulkey

Dan Mulkey presented the following minutes from the working group meeting on October 31, 2017 at 8:00 a.m. in with 54 in attendance.

1. Dan Mulkey called the meeting to order at 8:01 AM.
2. Introductions were performed.
3. Membership changes were noted.

The following six guests were added to membership:

- John Crotty
- Dwight Parkinson
- Igor Simonov
- Travis Spooone
- John Vartanian
- Lee Welch

The following members were removed from membership:

- Michael Faulkenberry
 - Michael Miller
 - Richard Smith
 - Christopher Sullivan
4. Quorum was verified. The working group consisted of 44 members, requiring 22 for quorum. 22 members were confirmed at the time of counting. 27 members were confirmed afterwards through the roster.
 5. Dan Mulkey made the call for any opposition to unanimous approval of the minutes. No opposition was raised so the minutes were unanimously approved.
 6. Dan Mulkey made a call for essential patent statements and responses. None were brought forth.

7. Dan Mulkey made the call for any opposition to unanimous approval of the agenda. No opposition was raised so the agenda was unanimously approved.

8. Status of Standards:

- a. C57.12.28 Standard for Pad-Mounted Equipment – Enclosure Integrity, Published July 15, 2014, Revision Due: 12/31/2024
- b. C57.12.29 Standard for Pad-Mounted Equipment – Enclosure Integrity for Coastal Environments, Published August 8, 2014, Revision Due date 12/31/2024
- c. C57.12.31 Standard for Pole Mounted Equipment – Enclosure Integrity, Published September 20, 2010, Revision Due: 6/17/2020, Corrigenda approved May 16, 2014
- d. C57.12.32 Standard for Submersible Equipment – Enclosure Integrity, Reaffirmed 3/7/2008, Revision Due: 12/31/2018, PAR expiration: 12/31/2019

9. Old Business:

- a. QUV presentation

Scott Abbott presented the final results from the QUV test that had been run by PPG and Sherwin-Williams. The purpose of the test was to understand QUV tests and determine if one could be used to replace the existing FS-40 bulb test. Both QUV-A and QUV-B bulbs were tested.

The QUV-B test, using a UVB-313EL bulb, is a very aggressive test which can cause degradation and loss of gloss that doesn't necessarily correlate to natural weathering according to Florida testing. This aggressiveness is due to the spectral distribution of QUV-B.

The QUV-A test, using a UVA-340 bulb, is a suitable test to weed out poor performing systems, if the test is performed correctly. The spectral distribution of QUV-A better matches daylight and has a better correlation to outdoor performance.

Based on the test results, Scott provided a proposed pass / fail requirement for both the QUV-A and QUV-B bulbs. For QUV-A, he proposed requiring either >70% gloss retention at 1000 hours or >50% gloss retention at 1500 hours for a passing result. For QUV-B he proposed >50% gloss retention at 500 hours for a passing result.

Scott mentioned that the QUV-A bulb is not currently used for preparing samples for SCAB testing and recommended proceeding with the QUV-B test as they have experience using this to prepare samples for SCAB testing.

A **motion** was made by Alan Wilks and seconded by Ed Smith to accept the wording in section 4.4.6 as proposed in the draft standard 2.3 which includes the use of the UVB-313EL bulb. A brief discussion followed where it was indicated that various ASTM tests are performed to test various parameters of the coatings. The motion passed unanimously.

10. New Business:

- a. Section 4.4.3 – Soak Test

Carlos Gaytan gave a presentation reviewing the soak test requirement in section 4.4.3 and his investigation into the comment made by RODE regarding Harrison's solution that is used in the soak test. He reviewed standard C37.100.1, C37.60 and C37.74 as part of the review.

The investigation reached the following conclusions:

1. The findings are that these standards do not specify a corrosion evaluation by means of a soak test or a soaking solution to be used other than Harrison's
2. The format in Annex C of C37.100.1, referenced in the comment, applies to pollutants in air, to define minimum creepage distance of glass and ceramic insulators
3. The standards under the RODE scope do not include a soak test requirement
4. The current requirements in C57.12.32 are not lacking in scope for evaluation of submersible equipment
5. Based on this, it can be concluded that the RODE comment does not provide a specific proposed change, and any further consideration would require additional work to establish concrete definition to be evaluated by the WG C57.12.32, possibly including resistance to solvents present in urban runoff

Carlos also discovered a typo in the definition of Harrison's solution. The ratio between ammonium sulfate and sodium chloride had been stated as 3.5 to 0.05 instead of 3.5 to 0.5. Checking with other references, he confirmed the 3.5 to 0.5 ratio is correct.

A **motion** was made by Alan Wilks and seconded by Ron Stahara to accept the change to section 4.4.3 Soak Test as proposed in Draft Standard 2.3 which included the corrected definition of Harrison's solution. The motion passed unanimously.

An **action** was given to Jeremy Van Horn to review the remainder of the document for other incorrect references to Harrison's solution.

Patrick Ho asked if there was a hydrocarbon test that could be implemented into the standard in the future. It was suggested that this be considered for a future version of the document.

b. Annex B – SCAB test

Dan Mulkey mentioned that the same wording for QUV testing is used in Annex B for the set-up of the SCAB testing. Some experience is needed before this can be changed from a UV-B to a UV-A bulb.

c. Section 4.4.7 – SCAB test

There was a prolonged discussion regarding the SCAB test. Dan Mulkey summarized that the only change to the proposed wording is to include the two bulbs available for this test.

Dan Mulkey mentioned it is the only accelerated test where the failures actually look like failed equipment that comes back to the shop. Rebecca Giang mentioned this is the hardest test for a coating to pass.

Justin Minikel suggested that the 2005 and 2008 revisions of ASTM1654 are significantly different. It is easier for a system to pass the 2008 standard than the 2005 standard. The biggest difference between the revisions is the inspection criteria. The 2008 standard only looks at discoloration from rust, but does not consider delamination, blistering, loss of adhesion, etc.

It was noted that certified labs may only have access to the latest version of the standard or equipment that can only test to the latest version of the standard and suggested that the most recent version should be referenced. It was also noted that the date needs to be included in the reference if a specific version of the standard is to be referenced. It was mentioned that the ASTM standard is believed to be updated or reviewed every 5 years.

An **action** was given to Justin Minikel to prepare a sentence proposal for section 4.4.7 to include blisters and loss of adhesion.

d. Section 4.4.8 – Abrasion Test

Dan summarized that the proposed change is to add the first sentence in line 538 of the draft standard. It was discussed that it should not state “red” rust because not all rust is red, for example in the case of zinc or galvanized. It was also suggested that the word “substrate” should be used instead of “metal” since the substrate may not necessarily be metal.

A **motion** was made by Alan Wilks and seconded by Ron Stahara to change the multiple instances in the document where the evaluation criteria is listed as “no visible red rust” to “no visible rust” and where it states “no bare metal” to “no bare substrate”. The motion was unanimously approved.

It was suggested by Rebecca Giang that the thickness of the coating should be stated. Alan Wilks mentioned that the current specification is to run the test at the minimum coating thickness. It was clarified that the thickness refers to the thickness of the total coating system.

Patrick Ho suggested that the term “rust” be defined in the document, or replaced with the term “corrosion”.

Justin Minikel suggested that language be added to explain the intent of the test.

e. Section 4.4.9 – Gravelometer test

Dan Mulkey clarified that the purpose of the test is for when the transformer is sitting in the utility yard, not necessarily when it is in its service life.

Alan Wilks suggested that the pass / fail criteria is too subjective, but it is difficult to find another way to do it. Rebecca Giang agreed that it is subjective and that it is an easier test to pass than the version in C57.12.29.

An **action** was given to Jeremy Van Horn to check the C57.12.29 standard and ensure the language is consistent between the documents.

It was noted that the word “mini-mum” in line 553 doesn’t need a hyphen.

11. Next meeting—MAR 27, 2018 in Pittsburgh, PA, USA

Copies of the two reports will be posted to the website along with these minutes.

Submitted by: Jeremy Van Horn

IEEE C57.12.34 – Three Phase Pad-Mount Transformers – Ron Stahara

Ron Stahara presented the following minutes from the working group meeting on October 30, 2017 at 3:15 p.m. with 77 in attendance.

Ron Stahara called the meeting to order and introductions were made. The rosters were circulated. The names of those in attendance are recorded in the AM system. To establish a quorum, a members list was displayed on the screen and those who saw their names were asked to hold up their hand. From this count of hands, it was determined that a quorum was established. The Patent Slide statement calling for Essential Patent Claims was read and no new patents were brought up. The agenda was presented and the group approved the agenda unanimously. The Spring 2017 Minutes were presented, and the group approved the minutes unanimously.

Task force reports were given on the following items.

- **Figure Review - Gary King, Task Force Chair**

As Gary and his team combed through these, they found a number of inconsistencies, as well as editorial, and technical errors. Gary's team supplied these corrections and changes to Steve Shull who attempted to make the corrections in the document. These were illustrated for the group in the PowerPoint presentation. Steve got most of these correct but was shown by Gary King a couple items which were incorrect. Steve made note of these items and committed to include them in the next revision.

- **Existing Standards - Dan Mulkey, Task Force Chair**

Israel Barrientos was tasked last time to review the ASME B30.9 and IEEE C57.12.90 for any changes that would need to be included in the new document. He reviewed these and found that even though there had been a definition change for the *Angle of Loading* in the B30.9, it didn't affect our document. This was further explained that we reference lifting which defines the angle in the vertical plane. This was important in that there is also an *Angle of Loading* in the horizontal plan. In reviewing C57.12.90-2010, he found that the Table 4 in the old document had moved to the Table 3 in the 2015 document. He shared a number of places that this had to be changed in the new revision of this document. Although this next item was not in what he was tasked to do, he did discover that in C57.12.00-2010, Table 15 of this document had moved to Table 12 in the 2015 document. All of these corrections will be included in the next draft.

- **Informative Annex – Steve Shull**

Steve Shull presented a new version of the annex. This is still a work in process and a number of items were noted to add and adjust. It was also pointed out that the items that are now included in the standard should remain in the standard. The key is that if the item is needed for health and safety, it should remain as it is now referenced in the current standard.

The chair asked that Steve Shull would complete these items and provide a new version to be review in the Spring 2018 meeting.

With this, the meeting was adjourned, Stephen Shull recording.

IEEE C57.12.36 – Distribution Substation Transformers – Jerry Murphy

This working group did not meet. Carlos Gaytan provided the following update to the subcommittee:

The working group did not meet in Louisville. The results of the second recirculation ballot were satisfactory; all but four negative comments were resolved and of those only two were not accepted by the commenter. Draft 6 was approved by RevCom at the June 2017 meeting, and the document was published in August.

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

Ali Ghafourian presented the following minutes from the working group meeting on October 30, 2017 at 1:45 p.m. with 65 in attendance.

The meeting was called to order at 1:45 p.m. by Ali Ghafourian.

A call for essential patents was made as required using the statement provided in the general session. No essential patents were brought forward.

A quorum was established with 23 of 37 working group members present.

The agenda for the meeting was presented and unanimously approved.

The minutes of the Spring 2017 meeting in New Orleans have been posted on the website since shortly after that meeting for the working group members to review. There were no suggested changes to the meeting minutes, and the meeting minutes were unanimously approved.

The Chair informed the working group members the PAR has been approved and expires in December 2021. The most recent standard was published in August 2014, and the next revision is due in December 2024.

The Chair briefly reviewed revisions to the current draft, D1.2, previously approved by the Working Group:

- A new table (Table 5) was added to the standard with minimum percent impedance values to align with a similar table in C57.12.20.
- The column in Table 2 containing minimum electrical clearances for phase-to-non-hygroscopic insulating barrier was corrected and revised to align with C57.12.34.
- Table 4 regarding electrical characteristics for transformers with dual voltage ratings was added back to the standard. Previously, there was discussion as to the reason this table was removed from the standard. It was suggested the table may have been removed because of confusion regarding the proper fuse rating when the transformer is shipped by the manufacturer.

Giuseppe Termini presented the results of the responses from 20 end-users/utilities to the transformer accessories survey issued by the Task Force comprised of Wes Suddarth, Craig DeRouen, and Giuseppe Termini. The responses showed transformer accessory requirements varied significantly among the respondents. However, certain transformer accessories were almost unanimous requirements among the 20 respondents including some type of internal fuses.

Steve Shull recommended the transformer accessories function and purpose be listed in an informative annex.

Donnie Trivitt offered a motion with a second from Kent Miller that any transformer accessories included in the Task Force survey not already described in the standard be listed and described in an informative annex. This motion passed with unanimous consent.

Tom Callsen offered a suggestion that a similar transformer accessories survey be issued to manufacturers to obtain more information on which accessories are more commonly specified in the industry.

The Task Force comprised of Wes Suddarth, Craig DeRouen, and Giuseppe Termini will issue a survey to a number of manufacturers collecting information on the percentage of transformers shipped with particular accessories gaining more insight to which accessories are more commonly specified in the industry.

The Chair requested volunteers to review the existing Figures in the standard and provide recommendations to increase the clarity. A Task Force comprised of Israel Barrientos, Jim Spaulding, and Mike Thibault agreed to review the existing Figures and make recommendations.

The Chair adjourned the meeting at approximately 2:45 pm.

Submitted by: Martin Rave

IEEE C57.12.39 – Tank Pressure Coordination – Carlos Gaytan

This working group did not meet. Carlos provided the following update to the subcommittee:

The working group did not meet in Louisville. The results of the recirculation ballot were satisfactory; all negative comments were resolved, and the document will be reviewed by RevCom for its meeting on December 5, 2017.

The plan is for the WG to meet in the Spring 2018 meeting in Pittsburgh, to continue the work on the list of items identified during the balloting process, and on which the WG decided to address on a future revision of the standard.

IEEE Task Force on Transformer Efficiency and Loss Evaluation – Phil Hopkinson

Phil informed the subcommittee that his company HVOLT inc had submitted comments in response to DOE's questionnaire. The recommendation was for DOE to consider multiple per-unit loads to determine efficiency requirements. HVOLT made this recommendation due to the short time window that was made available for commenting. The Task Force is still looking for more loading data from utilities, this data will help with both DOE comments and future loading guides. Phil presented the following minutes from the task force meeting on October 30, 2017 at 9:30 a.m. with 122 in attendance.

Phil Hopkinson welcomed the members to the meeting.

This was the third meeting of the task force. The minutes of the last meeting were uploaded to the IEEE Transformer Committee Website. Members were reminded of the essential patent requirements of the transformer committee, although as a task force this group will not be submitting any PARs.

There were no additional items for the agenda. So the agenda was approved by the body.

Background

The DOE Energy Efficiency rules will be due for renewal or revision by January 1, 2022. The current loading is estimated at 50% of nameplate rating load for medium voltage transformers and 39% for low voltage transformers. There is a need for real data to replace these estimates. The quality and availability of data have benefited from the expanding use of smart meters. Utilities should be capable of providing data on transformer loading broken down into load types, geographic locations and other useful categories.

Old Business

a. Update on Transformer loading data studies

At the last meeting, members reviewed the loading data from PG&E. The following utilities have provided or promised to provide loading data.

- i. PG&E
- ii. SCE
- iii. PECO
- iv. AEP
- v. DUKE

b. Review of format of data submission

Some steps in combining the data into a single database include:

- i. Establish compatible EXCEL Data file for data reporting
- ii. Use real time data acquisition for key locations
- iii. Use neutral clearing house (EEI) for gathering data and maintaining neutrality.
- iv. Annual load cycles gathered by rate class and logged over full 8760 hourly period/yr.
- v. Steve Rosenstock of EEI has offered assistance in compiling the data

c. Steve Rosenstock of EEI observations:

- i. Table 1 of the PG&E report makes a nice template for a “first cut” of information gathering and identified as Tier 1.
- ii. Tier 2 could be more detailed data on sub-categories of residential / commercial / industrial as shown on your slides.
- iii. Tier 3 is the most detailed data of sub categories based on geographic location or other key operational variables (such as trending data, if available).

d. PG& E Perspective Conclusions:

- i. Load cycles by hourly data logging should be accurate.
- ii. Load cycles by rate class capture daily, monthly, and annual load ranges.
- iii. Load factors can be calculated by day, month and year vs. Load Cycles.
- iv. RMS-equivalent easily obtained from hourly data but Load Factor OK.
- v. Transformer nameplate kVA is less than peak capability based on modelling

2. New Business

a. DOE Questions – (Docket #EERE-2017-BT-TP-0055)

Phil Hopkinson reported that DOE issued Docket #EERE-2017-BT-TP-0055.

The notification stated:

The U.S. Department of Energy (“DOE”) is initiating a data collection process through this RFI to consider whether to amend DOE’s test procedure for distribution transformers.

The responses to these questions were due by Nov 6, 2017. Because of this quick response time, Phil Hopkinson reviewed the 15 questions asked by DOE and gave examples of how one might respond to these as he shared his submitting response based on the data collected from the activities of this task force. This review was posted on the transformer committee website. He encouraged others to respond to this RFI even though the date for submittal was quickly approaching.

3. Assignments for Next Meeting

The next meeting will review any feedback from the DOE Questions and further collection of data from the loading study.

4. Adjourn – The meeting was adjourned at 10.45 am

Submitted by: Phil Hopkinson

C.3 Old Business

- Steve Shull commented on the development of C57.19.00 and C57.19.02 and asked for more participation in the working groups for both standards.

C.4 New Business

- Dan Mulkey brought up an issue with the meeting conflict between the Task Force on Transformer Efficiency and Loss Evaluation (DOE Activity Task Force) and the Working Group Meeting for C57.12.24. He requested rescheduling one of these meetings to eliminate the conflict.
- Phil Hopkinson brought up the PAR for C57.142 to investigate recommending changes to transformer testing to more adequately measure how robust the transformer is. This investigation is being done because it is believed that current test levels are not as severe as what modern transformers are exposed to in the field. One proposed test would be the standard impulse with non-impulsed terminals floating as it is believed this causes more stress on the coil. Steve Shull noted that distributed generation is causing various issues with transformers (inverters, IGBT’s, etc). Phil then commented on inverters causing 3 kHz spikes and issues with power quality and that one direction might be to recommend electrostatic shields.
- Garry Hoffman commented on DER causing issues with small transformers and requested the authority to form a task force to review the need to develop a PAR to study or develop a guide for distribution transformer monitoring. This motion was made by Garry and seconded by Mike Tebow.

- Discussion: Phil H. asked how do you make that happen? Garry replied that you need to show people how to monitor and interpret pressures, harmonics, and temperatures.

Gary volunteered to chair this task force. Vote was made with no opposition, unanimous approval.

- Aniruddha Narawane asked if we needed to review the definition of a padmount transformer due to solar units and their application. Steve Shull stated that this comment would need to be made during the working group meeting for these products.
- Dave Brender mentioned that NEC revision was beginning and that they were looking for volunteers to represent IEEE during the revision.

C.5 Chairman's Closing Remarks and Announcements

Steve had no closing comments to the SC except to see them in Pittsburgh for the 100-year anniversary meeting in spring of 2018.

C.6 Adjournment

Steve adjourned the meeting as provided in the meeting agenda at 10:15am.