

# T&I Meeting Minutes

## October 5<sup>th</sup>, 2020 – Virtual meeting



**Chair:** Nenad Uzelac  
**Secretary :** Alex Lizardo  
**Zoom meeting :** <https://global.gotomeeting.com/join/521334613>  
**Time:** Oct 5<sup>th</sup>, 3.45PM – 5.30PM.

### Meeting Minutes

#### 1. Call to order

The web meeting was opened at 3:15pm and called to order at 3:45pm (with hold for 2 minutes while people joined).

#### 2. Meeting etiquette

A quick overview of web-based meeting etiquette, AKA “netiquette”, was presented to ensure a successful meeting.

#### 3. Introductions of guests

Introductions were given via meeting chat.

#### 4. Attendance

There were 10 members and 38 guests in attendance. Quorum was met.

#### 5. Approval of the agenda

The agenda was elucidated by the chair. Paul Leufkens made a motion to accept without changes and Anil Dhawan seconded the motion.

#### 6. Patent Slides

IEEE patent slides were shared with the attendees with no comments from the group.

#### 7. Meeting minutes approval

The meeting minutes from the May 4, 2020 Spring meeting were confirmed as received. No objections were stated.

#### 8. Chairman report

- Subcommittee scope: The chair affirmed messages from prior meetings.
- Subcommittee membership and structure: Today we will be welcoming the first subcommittee members. The chair shared the current members list – currently we have 16 members and 2 vacancies.

## 9. Taskforce reports:

- a. "Testing for power frequency over-voltages >200% open gap" by *Mohit Chhabra*
  - o Mohit had no significant updates to share and needs volunteer to help keep the progress moving. Paul Leufkens, Caryn Riley, and Rahul Jain volunteered to be part of the effort.
- b. "T&D equipment for special applications" by *Sushil Shinde*.
  - o Nenad presents and requests volunteers for Sushil's subject that is longer than a white paper. He overviews the list of topics and look at the challenges of the application and the report can address the gap in the standards and the recommendation. Li Yu from Eaton would like to join. Dave Johnson recommends to set up a steering committee that looks at these items and decides what to be taken up and people chosen or recruited. Nenad points out the current structure having members from each subcommittee as well as the timeline and that this is in line with that idea. Dave, in that context, volunteers. Karthik also volunteers.
  - o Nenad requests for members to go back to individual SC groups and see if any users would be available to volunteer. Todd Irwin recommends mentioning to the main committee on Thursday and Victor Hermosillo recommends sending the slides to the SC chairs and request that they show it during their Wednesday meeting and also during general meeting. Anil says he will get back to Nenad directly on this topic
- c. "Asset Management/EOL" - Issue of aging equipment (diagnostics, end of life) needs lead.
  - o This topic is in need of a lead as Albert has brought this topic to its current status but is not able to continue leading the progress. It is a great opportunity for someone looking to have experience leading the taskforce. Nenad requests if attendees can think of a few names and share this with them and Dave Johnson recommends thinking along the lines of service people and Nenad adds users to good candidates.
- d. 1547 update was requested. No significant changes. Paul confirms it is resolved and no new developments besides waiting for face to face meeting for a round table which is on hold considering COVID-19 impact on in-person meeting.

## 10. Updates from relevant organizations:

Nenad presented an CIGRE A3 update:

- a. A3 update - it has been a busy year and first time the digital format is used. Edgar Dullni gave update, summarizing involvement from utilities, to be included in the brochure which is finished -> A3.38 should be publishing soon (along with A3.30,31,36 per slides shared in meeting) in 2020.
- b. A3 active working groups were presented A3 created a new website: <https://projeta3.cigre.org/>.
- c. Recently formed the UAB - the 'Voice' of utilities at Cigre. UAB consists of Cigre members employed by utilities

- d. A3 created LinkedIn account for new announcements, events, publications, collecting feedback, etc: <https://www.linkedin.com/company/cigre-sc-a3>

**11. Future events / conferences of interest**

- CIGRE 2020 was virtual. There will be CIGRE 2021 in Paris
- IEEE PES T&D: Oct 12, 2020 – Thu, Oct 15, 2020 in Chicago, IL USA was CANCELED.

**12. Future meetings**

- Spring 2021: Hilton Charlotte University Place, Charlotte, NC - April 18-23, 2021
- Fall 2021: Peppermill Resort, Reno, NV - October 10 - 14, 2021

**13. Adjourn**

Meeting adjourned at 4:25 PM.

IEEE T&I Subcommittee Meeting



Nenad Uzelac (Chair)  
Alex Lizardo (Secretary)



October 5, 2020



## Netiquette

- Attendance collected during registration
- Introduction through Chat
- Mute your microphone if not speaking
- Use video only if presented
- “Raise your hand” to enter discussion
- Answer poll questions when asked



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## Agenda

- Welcome
- Introduction through Chat
- Approval of the Minutes
- Patent slides
- Chairman report
- Task force report
- CIGRE A3 update
- Future events
- Adjourn



## Participants have a duty to inform the IEEE

- Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
- Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims

## Early identification of holders of potential Essential Patent Claims is encouraged

Slide #1

02 January 2018



## Ways to inform IEEE

- Cause an LOA to be submitted to the IEEE-SA ([patcom@ieee.org](mailto:patcom@ieee.org)); or
- Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or
- **Speak up now and respond to this Call for Potentially Essential Patents**

If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair

Slide #2

02 January 2018



## Other guidelines for IEEE WG meetings

- All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.
  - Don't discuss the interpretation, validity, or essentiality of patents/patent claims.
  - Don't discuss specific license rates, terms, or conditions.
    - Relative costs of different technical approaches that include relative costs of patent licensing terms may be discussed in standards development meetings.
      - Technical considerations remain the primary focus
  - Don't discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.
  - Don't discuss the status or substance of ongoing or threatened litigation.
  - Don't be silent if inappropriate topics are discussed ... do formally object.

For more details, see *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and *Antitrust and Competition Policy: What You Need to Know* at <http://standards.ieee.org/develop/policies/antitrust.pdf>

Slide #3

02 January 2018



## Patent-related information

The patent policy and the procedures used to execute that policy are documented in the:

- *IEEE-SA Standards Board Bylaws*  
(<http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6>)
- *IEEE-SA Standards Board Operations Manual*  
(<http://standards.ieee.org/develop/policies/opman/sect6.html#6.3>)

Material about the patent policy is available at  
<http://standards.ieee.org/about/sasb/patcom/materials.html>


**If you have questions, contact the IEEE-SA  
Standards Board Patent Committee  
Administrator at [patcom@ieee.org](mailto:patcom@ieee.org)**

Slide #4

02 January 2018



# Approval of Minutes

Technology and Innovation Subcommittee 

IEEE Switchgear Fall 2020 standards meeting  
 Location: Catamaran Resort, San Diego, CA  
 Date: October 7<sup>th</sup>, 2020  
 Room: Miram  
 Time: 3:45PM to 5:30PM  
 Chair: Nenad Lovicic with meeting facilitated by Karla Trist in his absence  
 Minutes: Karla Trist & Alex Lizardo


**Meeting Minutes**

- Call to order**  
The meeting was called to order at 3:45PM.
- Introductions and Circulation of the subcommittee sign-in sheet.**  
Sign-in sheets were circulated, and introductions were made.  
Karla agreed to facilitate the meeting in Nenad's absence and Alex Lizardo volunteered to write notes.
- Attendance**  
There were 49 guests in attendance.
- Approval of the agenda**  
The agenda was elucidated by the facilitator and accepted without changes.
- Meeting minutes approval.**  
The meeting minutes from the April 28<sup>th</sup>, 2020 meeting were reviewed. No objections or changes.
- Chairman report:**
  - Subcommittee paper review.** The facilitator shared a presentation prepared by the chair which summarized and restated important points.
  - Subcommittee membership and structure.** The facilitator shared the subcommittee nominations to be and emphasized to those in attendance should contact their SC chairs if they want to be re-elected.
    - LVID: Ted Ravis, Carl Schneider, Jeff Mizer
    - WSSB: Dave Johnson, Paul Loufiero
    - SA: Alex Lizardo, Elaine Kyrin
    - Waiting for nominations from ROCC, WNS and HHT
  - See attached presentation

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TI Subcommittee  
October 2020 min

**7. Task Force reports**

- TI1: Review IEEE 1547 standard's impact on switchgear standards**
  - Task Force chair Paul Loufiero was absent. In advance of the meeting he summarized the findings in the presentation "TI1 IEEE 1547 San Diego Oct 2020" attached below.
  - Mohit Chhabra gave a quick background on the presentation and Paul's activity in brief.
  - Presentation File:
    - 
    - The discussion became focused on the increases in maximum voltage in C84.1 and the position paper that the switchgear committee submitted. Todd Irwin updated the group about a general message received from C84.1. Todd finalized by saying we will have to keep an eye out on this standard and that the WG directly impacts switchgear. He believes the switchgear committee now has enough people signed up so that we are not caught off guard in the future. A question was asked if we believe the problem will happen again and Todd clarified that while they are not pursuing this topic in the current revision, any new revision always makes it a possibility, which is why we must keep actively involved in this WG.
    - Albert Louche brought up that AIAJ2 working group was created to discuss increased voltages, he will send Karla the information for her to include in the minutes.

**8. New Proposals**

Carry over of last T&I meeting agreed to be prepared before Fall 2020 meeting.

- Issue of aging equipment (diagnostics, end of life)**
  - Albert presented the attached proposal:
    - 
    - The facilitator brought up the need to confirm the scope as a SC - do we feel it is too broad and do we have the right people working on it? Below is the input received from attendees:
      - George Becker brought up there is ongoing work being done by IEEE 122.9. Albert clarified that he was planning to implement Nenad's comments which were to include the pre-existing and ongoing efforts by other groups (IEEE 43 Cigre group for example).

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## IEEE Switchgear T&I sub-committee

- **Facilitates** and **conducts** research related to Switchgear, Circuit breakers and Fuses that are covered under IEEE switchgear standards. The need for innovations arises because of the changing business environment and technology offerings.
- **Develops** technical reports and makes recommendations for further advancement of IEEE switchgear standards.
- **Coordinates** with other technical committees, groups, societies, and associations as required.



# IEEE Switchgear T&I sub-committee

- Will not develop standards
- Will cover the projects that are of interest to more than one switchgear subcommittee
- Anyone can write and submit a project proposal
- Subcommittee members will decide which projects to take.
- Initial members are chosen based on nominations, after will follow IEEE attendance rules.
- Today we will be welcoming the first subcommittee members.

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## T&I Membership

<b>LVSD:</b> <ul style="list-style-type: none"><li>• Ted Burse</li><li>• Carl Schneider</li><li>• Jeff Mizener</li></ul>	<b>HVCB:</b> <ul style="list-style-type: none"><li>• Dave Johnson</li><li>• Paul Leufkens</li><li>• vacant</li></ul>	<b>RODE:</b> <ul style="list-style-type: none"><li>• Kennedy Darko</li><li>• Anil Dhawan</li><li>• Caryn Riley</li></ul>
<b>SA:</b> <ul style="list-style-type: none"><li>• Alex Lizardo</li><li>• Eldridge Byron</li><li>• Albert Livshitz</li></ul>	<b>HVF:</b> <ul style="list-style-type: none"><li>• Sterlin Cochran</li><li>• Charles Worthington</li><li>• Jim Wenzel</li></ul>	<b>HVS:</b> <ul style="list-style-type: none"><li>• John Kaminski</li><li>• Phillip Corriveau</li><li>• vacant</li></ul>



## Task Force reports



## Task Forces

- 1) "Testing for power frequency over-voltages >200% open gap" (**paper**) **Lead: Mohit**
- 2) "Issue of aging equipment (diagnostics, end of life)" *Need Lead*
- 3) "T&D equipment for special applications"  
**Lead: Sushil** (**technical report**)



## 1) 200% open-gap testing (part 1 of influence of renewables on switchgear equipment)

### Scope of Work and deliverables:

1. Introduction
2. Define scope of switchgear to be covered in the White Paper.
3. Define extended duration of time for open gaps to be covered in the White Paper.
4. Identify applications where an open gap may be energized on both sides for extended durations.
5. Identify factors stressing open gaps when exposed to power frequency over-voltages.
6. Conduct user surveys to determine testing practices for open gaps exposed to  $\geq 200\%$  of rated voltage for extended durations.
7. Develop recommendations for standardization of testing practices for open gaps exposed to  $\geq 200\%$  of rated voltage for extended durations.

Goal: Write a technical paper before Spring 2021 meeting



## 2) Special applications

1. Arc furnace switching,
2. Gen synch application with HV circuit breakers in the absence of generator circuit breaker
3. Circuit breakers used in HVDC station on the AC side for filter banks
4. Power factor testing of CB in the field (this test is not done part of routine production)
5. Influence of renewables on HV circuit breakers in terms of harmonics, SC rating, X/R ratios, overvoltage
6. Electronics which is integrated into switchgear such as electronics used for fiber optic current sensors, electronics used with motor operating drives
7. Impact of HV disconnect switch transients on HV circuit breaker

- Goal for 2021 spring
  - Identify special applications
  - Review switchgear standards
  - Create “gap analysis”
  - Present at 2021 spring



### 3) Asset management / EOL

#### Scope of Work and deliverables:

1. Define scope of equipment to be covered by the Technical Report. Propose to include all equipment in scope of IEEE C37 Main Committee;
2. Identify the factors and stresses impacting the premature of equipment failure or equipment aging process;
3. Identify technical and financial feasibility to install on-line condition monitoring on different models type of T&D Switchgear
4. Identify and evaluate the present-day techniques to pre-detect potential failure and mitigate the aging of T&D Switchgear including:
  - a. Periodic maintenance and testing;
  - b. On-line condition monitoring and diagnostics;
  - c. Identify manufacturer design deficiency and life cycle management of the potential design failure equipment;
  - d. Reconditioning and upgrades using new manufacture' supplied components and materials;
  - e. Retrofit of the existing T&D switchgear with new sensing and condition diagnostic equipment;
  - f. Retrofill the aging components of T&D switchgear using pre-qualified modular assemblies;
5. Identify the right quantity of spare parts and recycling of stock;
6. Conduct users survey to evaluate the practices of the T&D switchgear lifecycle management;
7. Consolidate a list of equipment had failed due to manufacturer design, lack of maintenance, aging or climate change;
8. Digital Substation and self-diagnosing equipment as applied to aging T&D switchgear
9. Develop recommendations for standardization of the lifecycle management of T&D switchgear

Spring  
2021



## Updates from CIGRE A3 “T&D Equipment”



## Active A3 working groups (2020)

Working Group		
WG A3.30	A. Carvalho (BR)	Overstressing of HV substation equipment TB
WG A3.31	F. Rahmatian (CA)	Non conventional instrument transformers with digital outputs Electra
WG A3.36	M. Kriegel (CH)	Application and Benchmark of Multi Physic Simulation TB
WG A3.38	E. Dullini (DE)	Shunt capacitor switching in distribution & transmission system TB
WG A3.39	R. le Roux (IE)	Application and field experience with MOSA
WG A3.40	C. Heinrich (DE)	Requirements of MVDC circuit breakers
WG A3.41	R. Smeets (NL)	Interruption phenomena with SF6 alternatives
WG A3.42	H. J. A. Martins (BR)	Failure analysis of recent AIS instrument transformer incidents
WG A3.43	N. Garibaldi (CH)	Tools for lifecycle management of T&D switchgear based on CM
WG B1/A1/A2/A3.44	B. Rusek (DE)	Consequence of HV Equipment operating system voltages
WG A3.45	E. Sperling (CH)	Methods for identification of frequency response of LPVT
WG A3.46	P. Novak (DE)	Generator CG

Publishing in 2020

CIGRE e-Session 2020

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## Utility Advisory Board (UAB)

- Recently formed the UAB - the 'Voice' of utilities at Cigre.
- UAB consists of Cigre members employed by utilities
- Advises Cigre of the needs and requirements of utilities with respect to the tasks of A3.
- Just finished the paper "Influence of pandemic on T&D Equipment" that will be published in CIGRE CSE in October
- Accepting new Utility members.

### Chair

Robert LeRoux  
ESBI  
International  
[robert.leroux@esb.ie](mailto:robert.leroux@esb.ie)



# New CIGRE A3 Website

<https://projeta3.cigre.org/>



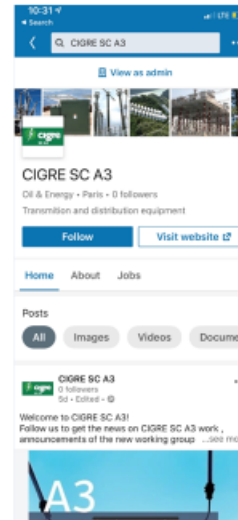
Webmaster  
Mahir  
Muratovic,  
ETH, Zurich



# A3 LinkedIn

<https://www.linkedin.com/company/cigre-sc-a3>

- A3 created LinkedIn account for new announcements, events, publications, collecting feedback, etc...
- If you have LinkedIn account, please follow this page and share it among your network



CIGRE e-Session 2020

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## E-session A3 Paper Presentation Schedule

SESSION 1: 26th august (morning CET) 44 presentations

<p>9.00 – 9.15</p> <p>INTRO</p>  <p>Nenad Uzelac (US)</p>	<p>9.15 – 10.00</p> <p>TESTING</p>  <p>Tadao Minagawa (JP)</p> <p>Q&amp;A</p>	<p>10.00 – 11.10</p> <p>INSTRUMENT TR.</p>  <p>Wayne Papper (AU)</p> <p>Q&amp;A</p>	<p>11.10 – 11.25</p> 	<p>11.25 – 12.25</p> <p>HVDC Switchgear.</p>  <p>Tadao Minagawa (JP)</p> <p>Q&amp;A</p>
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## E-session A3 Paper Presentation Schedule

SESSION 2: 26th august (afternoon CET)

<p>14.00 – 16.15</p> <p>SF6 Alternatives</p>  <p>Nicola Garibani (CH)</p> <p>Q&amp;A</p>	<p>16.15 – 16.30</p> 	<p>16.30 – 17.30</p> <p>CONTROLLED Switching</p>  <p>Frank Richter (DE)</p> <p>Q&amp;A</p>	<p>17.30 – 18.10</p> <p>MV Switchgear</p>  <p>Frank Richter (DE)</p> <p>Q&amp;A</p>	<p>18.10 – 18.15</p> <p>Day 1 Wrap up</p> 
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# E-session A3 Paper Presentation Schedule

## SESSION 3: 27th august (morning CET)

8.30 – 10.30	10.30 – 10.45	10.45 – 12.15	12.15 – 12.20
Reliability T&D equipment		HVAC Switchgear	Conclusion
 Wayne Peppel (AU) 		 Nicola Garibaldi (CH) 	

## Contacts



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## Future Events

- CIGRE 2020
  - Going virtual: August 24 – September 4
  - Papers and tutorials will be presented via webinar
  - TC committee working on the details
  - There will be CIGRE 2021 in Paris
- IEEE PES
  - Also virtual
  - August 2-6

