

MINUTES OF HVDC AND FACTS SUBCOMMITTEE MEETING: 2020 IEEE PESGM

MEETING LOCATION AND TIME

Meeting date/time: Wed., Aug. 12, 2020, 1:30 pm – 3:30 pm EDT

Location: on Webex

1. WELCOME AND ANNOUNCEMENTS

Brian Johnson welcomed all attendees

2. INTRODUCTIONS

42 attendees. They introduced themselves.

3. APPROVAL OF 2021 MEETING AGENDA

Mike Henderson moved for approval; Ram Adapa seconded → approved

4. APPROVAL OF MINUTES OF THE SUBCOMMITTEE MEETING DURING 2020 PESGM (AUG. 12, 2020)

Dirk Van Hertem moved for approval; Ben Mehraban seconded → approved

5. ELECTION OF VICE-CHAIR AND SECRETARY

- Current Vice Chair will rotate to be Subcommittee Chair on January 1, 2021
- Current Secretary will not be able to rotate to Vice Chair, so need to select both a Vice Chair and a Secretary
- Vice Chair:
 - Dirk Van Hertem was nominated by nominating committee.
 - No other nominations from the floor.
 - Dirk Van Hertem was elected
- Secretary
 - Person nominated by committee withdrew due to their workload from regular job
 - No nominations from the floor.
 - Election of Secretary deferred

6. WORKING GROUP REPORTS

I. **WG 15.05.02 DYNAMIC PERFORMANCE AND MODELING OF HVDC SYSTEMS AND POWER ELECTRONICS FOR TRANSMISSION SYSTEMS**

Kai Strunz reported that the working group met earlier this week. The working group has several long-term activities which they are winding up. Most notable is documentation of a 12 Bus FACTS test system developed through the working group. The working group is undertaking some new activities and is forming task forces on these topics. They had several presentations related to these topics during their meeting.

II. **WG 15.05.08 HVDC ECONOMICS AND OPERATING STRATEGIES**

Mike Henderson reported that the working group met earlier this week. They also put together a panel session for this conference. The working group members nominated Orestes Macchione as the Chair of WG. Mike will be Chair Emeritus. This has been approved by the Subcommittee Executive Committee.

The working group would like to hold a panel session at the PESGM 2021. Would like a 4-hour session on Monday afternoon (1:00-5:00), with their working group meeting the same day (11:00-1:00). Will change how they set up the panel somewhat: fewer, longer presentations.

There was a question about learning that number of people who have viewed the panel session and what they thought of it. An earlier discussion before meeting called to order had speculated that a lot of people didn't watch panels last week but are planning to watch later. A concern was that they might not actually watch.

III. **WG 15.05.14 EDUCATION ON HVDC AND FACTS**

Brian Johnson presented. The working group had planned to hold a panel session at the T&D conference. Conference was delayed to October and later cancelled. Looking at a panel at next T&D. Members of the working group are also helping put on a power electronics short course for Boston PES section.

IV. **WG 15.05.18 STUDIES FOR PLANNING OF HVDC**

V. **WG 15.05.19 PRACTICAL TECHNOLOGIES FOR VSC HVDC SYSTEMS**

Joint Report from both WGs:

Robert Renner presented that the working group met earlier this week. Finishing up a document. Looking at new directions to go.

WG on Practical Technologies for VSC HVDC did a panel session. Comment that PES did not give people viewing panels good guidance on asking questions. Would like to see new plan for panels if have a future virtual conference.

Have plans for creating several new task forces for the coming year.

Considering 3 panels for next GM

- Pandemic and consequences for HVDC systems
- Grid forming converter definition for HVDC
- Using replica converter models for HVDC system simulations

VI. P2745– UNIFIED POWER FLOW CONTROLLER WORKING GROUP

Yi Yang did a PowerPoint presentation on the activities of the WG.

The “IEEE P2745.1-2019: Guide for Technology of Unified Power Flow Controller Using Modular Multilevel Converter: Part 1: Functions” has been published in Dec. 2019. The 7th working group meeting of IEEE PES T&D UPFC WG_P2745 series will be held from August 26 to August 29, 2020. The 7th WG meeting will be four half-day virtual meetings using WebEx. The detailed report will be made available on the Subcommittee’s website.

7. REPORT ON PANEL SESSIONS FOR 2020 PES CONFERENCES

- T&D Conference: Panel on “HVDC Transmission Fundamentals” was proposed but the Conference was cancelled.
- PESGM 1: Recent HVDC and FACTS refurbishments, installations, and special controls and economic choices
- PESGM 2: HVDC grid protection and protection equipment
- PESGM 3: Analytical Approaches to Power Converter Interactions in Transmission Grids
- PESGM 4: Low Frequency HVAC Transmission Systems
- PESGM 5: Digital emulation: HVDC studies using replicas – withdrawn
- PESGM 6: Avoiding hybrid AC DC transmission line cascading outage (jointly with Power Systems Relaying and Control Committee)

8. PLANS FOR PANEL SESSIONS AND TUTORIALS FOR 2022 PES CONFERENCES

- Please note the deadline of **August 31, 2020** for the proposal submission.
- Any/All tutorial requests should be vetted and approved by a technical committee (TCPC responsibility).
- There is one common annual call for tutorials for PES GM, T&D and ISGT conferences (T&D for the relevant years); no separate calls for tutorials per conference.
- The application should be submitted through the submission portal, <https://www.ieee-pes.org/ieee-pes-2021-call-for-tutorials>
- Someone asked if PES had a survey of areas of interest for tutorials. Brian to contact Edvina Uzunovic (PES VP for Education)
- Dirk Van Hertem suggested considering a possible Tutorial on “Introduction to HVDC”

9. HVDC AND FACTS SUBCOMMITTEE WEBSITE UPDATE (COLEMAN SMITH)

Website: <http://sites.ieee.org/pes-hvdcfacts/>

- Requested input from working groups to add comments
- Question from the floor about whether meeting minutes are posted
- Looking for pictures for the web site and other suggestions for improvements

10. AWARD COMMITTEE UPDATES

- Uno Lamm Award Committee (Abhay Kumar)
 - awarded to: Hartmut Huang
- IEEE PES Nari Hingorani FACTS Award (Stig Nilsson)
 - awarded to R. P. Sasmal
- IEEE PES Nari Hingorani Custom Power Award (Ram Adapa)
 - no nominations received before deadline
- Fellows
Four new Fellows related to HVDC and FACTS
 - Venkata Dinavahi - *for contributions to real-time simulation of power systems with embedded power electronic converters*
 - Hong Rao - *for leadership and contributions to the design and application of HVDC in AC/DC grid*
 - Xiao-Ping Zhang - *for contributions to modeling and control of high-voltage DC and AC transmission systems*
 - Yi Zhang - *for leadership in the development of real time digital simulation in power systems*

11. REPORT OF IEEE SUBSTATIONS COMMITTEE

The activities of different WGs were presented.

12. LIAISON REPORTS

- a) CIGRE US National Committee: Ben Mehraban reported that no meeting was held.
- b) Overhead Lines - HVDC Line Design Guide TF – Ram Adapa reported that the guide has been published to PES Resource center.
- c) Liaison with the PSOPE Committee Task Force on “Ultra-Wide-Area HVDC Overlay Studies”—no report
- d) CIGRE B4
 - a. Several people gave reports
 - b. Green book on FACTS recently released
 - c. General session will be virtual—meeting attendees were encouraged to participate.
- e) Discussion of P2800: “Standard for Interconnection and Interoperability of Inverter-Based Resources Interconnecting with Associated Transmission Electric Power Systems” Family of standards
Reigh Walling reported that HVDC converter stations have been added to the scope
 - i. Harmonics recommendations are largely based on distribution systems
 - ii. HVDC transmission interaction studies are not considered
 - iii. They are far into the process of writing the standard
 - iv. Requested HVDC and FACTS Subcommittee members to still get involved

13. OLD BUSINESS

Subcommittee willing to provide Endorsements for IEEE Fellow nominations

14. NEW BUSINESS

- HVDC and FACTS related standards
 - Renewal of IEEE 1124-2003: IEEE Guide for Analysis and Definition of DC Side Harmonic Performance of HVDC Transmission Systems
 - Abhay Kumar mentioned that there is an IEC working group starting on this topic. Some discussion took place about trying to collaborate with that working group and working toward harmonized standards.
 - Several HVDC and FACTS related standards have been submitted as Entity Balloted
 - Representatives of Entity Members of IEEE SA can participate (as done in UPFC working group)
 - As sponsoring subcommittee we can have non-voting working group representative

15. GENERAL REPORTS ON HVDC AND FACTS PROJECTS/DEVELOPMENTS

Attendees presented on different HVDC and FACTS Projects

16. NEXT HVDC AND FACTS SUBCOMMITTEE MEETING

2021 IEEE PES GM, Washington, DC, USA.

Wednesday, July 28, 2021, 1:30 pm – 4:00 pm EDT

17. Adjourn

Prepared and respectfully submitted by,

Dr. Brian Johnson

and

Dr. Rajiv Varma

Chair,
HVDC and FACTS Subcommittee

Vice Chair,
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